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MODERN TRANSPORT

"THE TIMES" OF THE TRANSPORT WORLD

SELECT COMMITTEE ON TRUNK ROADS

See Page 3

VOL. LXXXI No. 2103 [*Registered at the G.P.O. as a newspaper*] LONDON, SEPTEMBER 5, 1959 PRICE NINEPENCE

CURRENT TOPICS

William Valentine Wood

IN manner and appearance Sir William Wood, whose death at the age of 76 we record this week, was the very opposite of the business tycoon. And yet that is what he became in June, 1941, following Lord Stamp's tragic death in an air raid, when he assumed the presidency of the London Midland and Scottish Railway, at that time one of the largest commercial undertakings in the world. Gentle and modest to a degree (yet inflexible in technical argument), ever mindful of the feelings and frailties of others, he was quite devoid of the kind of self-assertiveness and other less agreeable qualities that are sometimes associated with success. His was the shy professorial mien, albeit allied with a native Irish humour which ever and anon found expression in the flash of wit and repartee. In this respect he was at his best in the witness box during his many appearances on behalf of the former railway companies before Parliamentary committees, and in such courts as that of the Railway Rates Tribunal, when his profound knowledge and keen intellect could conquer the cleverest and most insidious cross-examination. Although his success and honours—he received the K.B. in 1937 and was created K.B.E. 10 years later—were richly deserved he never sought the distinctions thrust upon him. But events conspired that way. Acquisition by the Midland Railway Company of the Belfast and Northern Counties system, whose headquarters staff he had joined in 1898 at the age of 15, contributed to his ultimate preferment and establishment at Euston. His first distinction came with his membership during the 1914-18 war of the accountants' committee set up by the Irish Railway Executive Committee.

Gifted and Honourable

IT was in 1919 that Wood came to London at the invitation of Sir Eric Geddes to assume the post of director-general of transport accounting in the new Ministry of Transport, whose accountant he became two years later. Returning to his old love—the railways—in 1924 as assistant to the accountant-general of the L.M.S., he came two years later under the aegis and influence of Lord Stamp, president, and later chairman, of that company. By 1927 he had become controller of costs and statistics and in 1930 was made a vice-president of the L.M.S. During that period he served in close collaboration with his chairman, providing ideas and presenting facts upon which were based many of the successful methods and policies of the L.M.S. It was an ideal partnership between two intellectuals, one the thinker and expert and the other the man of affairs with the flair for enunciating and developing policy. It is indeed interesting to conjecture upon what might have been the results of this partnership in the broader field of nationalisation had it not been so rudely severed. The choice of Wood as Stamp's successor was natural and inevitable; he stayed at Euston, where he enjoyed wide respect and popularity, until 1947 when he joined his former Ministerial colleague, Lord Hurcomb (its chairman), as a member of the newly formed British Transport Commission, with whom he remained until his retirement in July, 1953. Sir William Wood will long be remembered with affection and by many with gratitude, particularly amongst the membership of the Institute of Transport, of which he was president in 1943-44 and whose interests he did much to encourage and support. His kindness to the various bodies of students in the Institute—and, indeed, to individuals—was outstanding; to our knowledge he even altered arrangements for a personal anniversary to address young men on railway management. We ourselves will always treasure the help, courtesy and friendship—extending over 40 years—of this gifted and honourable man.

Status of the Docker

AGREEMENT in principle between the National Association of Port Employers and the four unions represented on the National Joint Council for the Port Transport Industry on the introduction of a pension scheme for dockers is another big step forward, or so it may be hoped, in the advancement of their status. Decasualisation was a major move in that direction, but, in the words of Mr. A. J. Crichton, chairman of the employers' association, the docker still tends, wrongly, "to believe himself to be regarded by the public as unimportant." Now, to security while in employment there is to be added some measure of security in later life. The pension scheme, the probable outline of which is referred to on page 20, will, of course, be supplementary to national assistance and pension benefits. An important consequence of the scheme will be the retirement, it may be compulsory, of elderly workers—eventually it is intended that 65 should be the upper age limit, and this could dispose of the present 8 per cent surplus labour force. The most welcome feature of the proposals will for many be the introduction of a training scheme for new entrants in which, besides learning how to operate port equipment, a man would be shown the critical role of port working in international commerce. This is a great opportunity to bring the outlook of the port worker up to date on matters of mechanisation and productivity. It may take some time to achieve concrete results but the rewards are so great—and the need so compelling—that too early a start cannot be made.

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Transatlantic Friendship

ACROSS the Atlantic an engaging flamboyancy attends business affairs from time to time and a delightful instance is afforded by an illuminated testimonial now sent to Sir John Elliot, chairman of Cook's, by the American Transit Association, to mark his retirement from the chairmanship of London Transport. It recalls the enthusiasm with which he and Lady Elliot were received at the Montreal ceremonies to mark the 75th anniversary of the Association. The resolutions refer to Sir John's notable contribution to "the furtherance of the art of public transportation in Great Britain for a period in excess of 30 years," for six of which he had "responsibility for the operation of one of the world's most extensive systems of urban public transportation." The A.T.A., whose interests extend to all aspects of road passenger transport in the U.S.A., pays tribute to Sir John's readiness "to share his great knowledge and broad experience and to lend assistance and encouragement to the members of the American Transit Association"—a charming acknowledgment.

Dracones in Commercial Service

WITHOUT any fuss the towed flexible barge is now proving itself in everyday use in the Solent. These woven nylon Neoprene-coated Dracones are being employed in the delivery of petroleum products from the Esso refinery at Fawley, not only to Jersey (as was recently recorded in our columns), but also to Newport, Isle of Wight, and Portsmouth. The pattern of the Jersey operation is for the 9,000-gal. Dracone, 100 ft. long and 5 ft. in diameter, to be towed behind a coastal tanker. On the inaugural voyage, the tanker delivered her cargo to one berth, the flexible barge being towed by launch to another. In May this year, it will be recalled, a Dracone successfully passed over or through steep seas running up to 9 ft. in height on a trial voyage from Billingham to Flushing; others have been tried out in narrow, winding creeks in the Port Harcourt area of Nigeria, being dragged over mangrove banks and fishing stakes without hurt. They have been towed by a variety of craft and have revealed no practical difficulties; indeed, a considerable volume of technical knowledge has now accumulated. In both developed and under-developed countries the demand for economical coastwise and inland navigation of bulk cargoes, eliminating both handling and the need for costly port installations, must provide rosy prospects for this novel vessel.

For the Business Flyer

WITH nearly 14 years' experience of operating its own aircraft in connection with its widespread civil engineering commitments Sir Robert McAlpine and Sons, Limited, has now announced that it is prepared to provide industrial firms with advisory and operational services in connection with business flying. If they wish they can be given information as to operating costs and can be provided with pilots and the most suitable aircraft for their requirements. Alternatively McAlpine Aviation will operate the aircraft on an agreed rate per flying hour for a year, whereafter the client will have the option to buy the machine if he so desires. There can be no doubt that there has been less inclination in Britain to indulge in executive flying than in almost any country in the world and while this may be attributed in some measure to the short distances so often involved, to the weather conditions that so often prevail and to the absence of suitable aerodromes, there are none the less good grounds for the McAlpine view that there is scope for considerable development in this sphere. It might be added that there is also scope for a British aircraft manufacturer to produce a suitable type of aircraft—at the moment there is not one.

London Transport

IN a foreword to London Transport's *Annual Review* for 1958 (2s. 6d. from L.T.E., 55 Broadway, S.W.1) Sir John Elliot reiterates that because of the increase in total numbers of motor vehicles the freedom of movement on the streets is in jeopardy. Although the long-term answers have to be found for some of the problems faced during his six years of office, he has no doubt that his successor and the Executive and management behind him, will continue in the Ashfield-Pick tradition so that the undertaking may be regarded as a model of its kind. In that the staffs from top to bottom have a major part to play, in giving their best in the service of Londoners and in their own interests, for the two are really one. Car traffic increased by 9 per cent while cars registered in the L.T.E. area increased by 17 per cent—an indication, perhaps, of approaching saturation. Parks at suburban Underground stations provide for 2,650 cars, or more than double the 1955 capacity. Because of the seven-week bus strike in the summer road services carried 20 per cent fewer passengers and the railways nearly 4 per cent more.

Victoria Line

DESCRIBING the Underground, with the suburban lines of British Railways, as "indispensable to the daily life of London," this review of L.T.E. affairs makes a strong plea for building the proposed Victoria Line tube, from Victoria to Walthamstow. The line was indispensable to the future of London's traffic movement and if it was not begun soon, conditions on certain Underground lines would become intolerable in peak hours, it says. The London Travel Committee has recently recommended to the Minister of Transport that the line should be built "as a useful addition to London's transport facilities in any circumstances" and the review expresses London Transport's hope that the money for its construction will be found. Work could begin within a few months and the line be open to traffic within six years. It would cost about £55 million, which would be about the same as the cost of an urban motorway of similar length, but with a several times greater passenger carrying capacity.

Bracebridge Heath Revisited

THE economics of bus operation in now prosperous farming lands of Lincolnshire were always somewhat precarious and the Lincolnshire Road Car Co., Limited, was distinguished when we knew it 30 years ago for low revenues per car-mile. The position has become no easier in this day and age with the competition of exceptional numbers of motor cars. This makes the economical running of the engineering department vital; for many years the Bracebridge Heath headquarters of the company were housed in four old wooden aircraft hangars erected in the 1914-18 war. To secure the maximum efficiency two of these hangars have been converted into light modern buildings with roofs supported on reinforced concrete trusses and the works are now a model of their kind for dealing with the fleet, today 414 strong. The conversion, which we inspected last week and to which some further attention will be devoted later, has been made possible by the recent opening of a new bus station and headquarters offices at St. Mark's, Lincoln; these premises incorporate a garage for the 59 vehicles stationed at the focal point of the system. Transfer of these vehicles into the city saved dead mileage and enabled the changeover of the works to begin. One surplus hangar has been transferred to British Road Services and the other will make snug winter quarters for delicensed vehicles. This metamorphosis merits congratulation.

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The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements.

Ubiquitous Ministry

AS illustrating the manifold duties of his department Sir Gilmour Jenkins, its erstwhile Permanent Secretary, refers to a former Minister of Transport and Civil Aviation as saying that he was never able to take up a daily newspaper without seeing some mention of an event or problem which concerned him and his ministry. The significance of the utterance is amply confirmed in Sir Gilmour's comprehensive and descriptive work *The Ministry of Transport and Civil Aviation* (George Allen and Unwin, Limited, 21s. net), recently published in the New Whitehall Series prepared under the auspices of the Royal Institute of Public Administration and covering the present work of the major Government departments. This ministry is indeed an important one, for the transport industries employ between them some 10 per cent of the working population and contribute about 13 per cent of the gross national product; its growth has kept pace with the remarkable developments of the last 50 years, although its many activities have but recently become the concern of one minister. From the middle of the 19th century, shipping and inland transport were covered by the Board of Trade. At the end of the 1914-18 war inland transport was transferred to a new Ministry of Transport; shipping remained with the Board of Trade until 1939 when the vast problem of wartime shipping control necessitated the setting up of a separate ministry. Then in 1941, to meet the need for co-ordinating the work of ships, ports and inland transport, the Ministry of War Transport was formed by amalgamating the Ministries of Shipping and Transport. And so it remained after 1945 except that "War" was dropped from the title. Until 1946 civil aviation had been the responsibility of the Air Ministry. In that year a separate ministry was set up; in 1953 came amalgamation as Ministry of Transport and Civil Aviation—a tautological label.

Advantages of Concentration

THERE have recently been suggestions that the ministry is too large and cumbersome. This may be doubted; the organisation seems reasonable and in any case advantages must accrue from being "able to deal in one department with questions of competition between airway corporations and shipping companies or between coastal shipping and road and rail, and to consider under one roof the need for improved surface communications with a new aerodrome, or, when dealing with port problems, to have easy contacts with shipping, railways and road transport." It is not possible, however, to apply one set of principles equally to the administration of all forms of transport, each with its own history and operational peculiarities; hence, despite its facilities for co-ordination, the ministry must have at least three separate and distinct departments to deal with their respective problems. Many of these the book reviews, laying emphasis on their extent and diversity and dealing authoritatively with the statutory responsibilities of the minister towards the boards governing the several transport services that have been nationalised. Shipping appropriately—and fortunately—remains free, but the relationship between it and the ministry is very close indeed. Wide government control, which can be extended in time of war, is exercised under the Merchant Shipping Acts, and the antagonism of a hundred years ago has given way to "friendliness, trust and mutual co-operation."

Three Departments in One

UP until 1941, when it became also responsible for shipping, the ministry, as we have seen, was concerned solely with inland transport; as such it was perhaps regarded as a stepping-stone to preferment and became notable for its frequent changes of minister. But with heavier responsibilities has come extension of the average tenure of office. With the addition of civil aviation the department's importance has been further enhanced, and the present minister, Mr. Harold Watkinson, holding office with distinction since 1956, quite rightly enjoys Cabinet rank. Concluding his review of the history and functions of the ministry the author remarks that in a period of 12 years three departments were rolled into one and the British public became accustomed to the spectacle of this particular ministry changing its name with practically every change of government. "Who knows," he asks, "whether the last change has yet been made?" The British Transport Commission's hope, expressed in its 1956 report, for a period of stability in which to press on with reconstruction free from periodical and seismic upheavals on political account must be echoed widely, he says, and not least in the Government Department concerned with the upheavals when they occur. As heretofore, the department will advise on what it considers to be the best arrangements in the circumstances of the time, but succeeding governments will take the decisions. Separate parts of the book are devoted to shipping, inland transport and civil aviation, and one is impressed with the account of the variety and complexity of the work and responsibilities. Part V is concerned with organisation and common services and, to conclude, the author indulges in some reflections on the future; from these comes evidence that the department is thinking well ahead, and so it must if transport is to be encouraged to keep pace with commercial and technical development. As he points out, it must at all times keep under review each individual aspect of its operations on the basis of things as they are and in the light of both present needs and possible future tendencies.

A Brake on Rashness?

DISCUSSING what this means in respect of general far-reaching questions of transport policy he says there are some things the ministry cannot usefully do. "When a subject is a matter of political controversy it obviously is idle for the department to spend much time considering whether a particular policy advocated by one party is better than another policy advocated by its political opponents. Which policy will be adopted will be decided not by a nice weighing of merits but by the particular colour of the government in power." He goes on to say that what the department can and must do, when changes are determined by political considerations, is to advise on the form which the changes should take so as to secure the best ultimate pattern and to minimise the damage arising during transition from one form of organisation to another. But surely there is an added duty to try to impress upon the political head the need for close consultation with the experts before embarking on a course which is deemed unwise from a practical point of view and contrary to the true interests of the community. Quite rightly the department in such cases is not concerned with propounding broad theories of transport policy but with their practical application. "For this purpose," states Sir Gilmour Jenkins, "as for all the department's work on policy matters, the main requirements are a good working knowledge of the industry, access on a basis of confidence to those who control and operate transport and who have, therefore, the practical knowledge which is indispensable in arriving at solutions which will work, and some familiarity with academic studies in the field of transport theory." Above and beyond all this, we suggest, is the need for a will to ensure that those who want to make changes give full consideration to the advice of the experts. This book should be read and studied by all interested in and actively concerned with transport. Its author, who recently retired from the service, is to be commended —in this as in other directions—on the fulfilment of a really worthwhile task.

NEWS SUMMARY

APPOINTMENTS to the board of British Road Services have been announced to take effect from October 1. Mr. T. G. Gibb, general manager, B.R.S., will also be chairman of the board of management and Mr. G. F. Sinclair becomes deputy chairman and deputy general manager with responsibility for technical services. Mr. Harold Elliott, chief traffic manager, retains that post and joins the board of management in charge of traffic. Mr. C. Barrington relinquishes his particular responsibility for traffic and becomes a part-time instead of full-time member from January 1, 1960, from which date he is to be chairman of the Atlantic Steam Navigation Co., Limited.

Details have been announced by B.O.A.C. and Qantas Empire Airways of the Kangaroo service between Britain and Australia which will be operated by jet aircraft from November.

Details have been announced by Short Brothers and Harland, Limited, of the Britannic turboprop freight aircraft with four Rolls-Royce Tyne engines and an all-up weight of 218,000 lb. See page 7.

In preparation for continuous service at high speeds on the London—Birmingham motorway, the Birmingham and Midland Motor Omnibus Co., Limited, has adapted a C5 coach and tested it on the M.I.R.A. track.

The death has occurred of Sir William Wood, formerly a member of the British Transport Commission and previously president of the London Midland and Scottish Railway. Tributes to him appear on pages 1 and 11. A memorial service will be held at St. Pancras Church, N.W.1, at noon on September 7.

Sir John Elliot has received a testimonial from the American Transit Association to mark the end of his term of office as chairman of London Transport; decided upon by the directors at their meeting at White Sulphur Springs, West Virginia, on May 20 last, it also recalls his stirring address to the 75th anniversary meeting of the A.T.A. at Montreal.

TRUNK ROAD PROGRAMME

Select Committee Reports

COMMENTS ON PRIORITIES AND RESEARCH

THE report was issued recently of the Select Committee on Estimates on trunk roads,* their planning and research, land acquisition and the national highway organisation. A sub-committee took evidence from representatives of the Minister of Transport and the Secretary of State for Scotland, the Road Research Laboratory, and from county surveyors and certain other persons.

A trunk road, the report explains, is part of the national route system for through traffic; responsibility for this system rests with the central Government, which pays the whole cost of its maintenance, improvement and extension. New trunk roads can be designated, or new construction authorised, by means of an order of the Minister of Transport or (in Scotland) the Secretary of State. The great majority of schemes for improvements and new construction are designed and supervised by local highway authorities on an agency basis, and for this purpose county councils and the larger borough and urban councils are appointed. There are nine Ministry of Transport divisional road engineers for England and Wales whose duty it is to protect the interests of the Minister when work is carried out by an agent. Where local authorities are fully occupied, or where a large scheme is considered to be beyond their scope, consulting engineers are appointed and supervised direct by the Minister or the Secretary of State.

Basis of Inquiries

The total estimate for England, Wales and Scotland, under the sub-head examined, was £32,666,000, for the year ended March 31, 1959. This represents a dramatic increase over recent estimates since the comparable sum for the year ended March 31, 1955, was less than £2 million and reflects the rapidly accelerated programme of trunk road construction. The principal concern of the committee was to see whether the programme, which must necessarily be expensive, was well enough prepared, and the machinery for carrying it out sufficiently flexible, for the best possible trunk road system to be constructed with the money available.

If the trunk road programme is to be planned efficiently, and priorities properly allocated, there must be adequate research into traffic needs before plans are drawn up. If the trunk roads themselves are to be built to the most satisfactory standards, research into materials and methods should be well advanced before actual construction gets under way. It was therefore necessary to see whether the present programme has been adequately prepared. The committee is not satisfied that it has. The sub-committee which heard evidence was told of the selection of a site by the Road Research Laboratory for experiments in road construction at Alconbury Hill in 1945, but permission to begin the experiments was not granted until 1957.

Cost of Earth Moving

The Department of Scientific and Industrial Research (of which the Road Research Laboratory is part) referred to the need for research into machines for moving and excavating soil. This need was emphasised by the Director of Road Research in 1957 and its importance was stressed by a witness before the sub-committee who pointed out that earth moving accounts for half the cost of road construction, and that if a shilling per ton moved could be saved, the cost of the London-Birmingham motorway would be reduced by £1 million. When the Director was asked, however, whether the Road Research Laboratory had yet begun any research into earth moving, he replied that he did not think so, and his deputy confirmed this. Expenditure on research was not significantly increased until after the beginning of the trunk road programme, instead of in anticipation of it. Despite widespread recognition for several years past of the need for more research, Britain's first motorways are in the nature of experimental roads, as witness the unfortunate experience with the Preston by-pass, says the report.

The same considerations apply to research into traffic needs as to constructional research. The Minister, in deciding whether to give priority to rural motorways or to urban road construction, should have been armed with adequate information about the behaviour of the nation's traffic. It appeared, however, that only lately has the Minister encouraged the five largest conurbations to establish urban study groups. They are not all working and indeed in some cases it is doubtful whether they will decide to start. This information is overdue. A further illustration of this shortcoming is the fact that research on the expected traffic flow and time savings on the London-Birmingham motorway was not completed until June, 1958, which was three months after the work had actually begun.

No M.o.T. Divisional Road Engineer has yet attended a course at the Road Research Laboratory. The Select Committee on Estimates of last session in its report on the Department of Scientific and Industrial Research, made practical suggestions for improving the relationship of the Laboratory to the Ministry and for bringing specifications into line with the latest information.

Order of Priorities at Fault

Having considered the basis on which the trunk road programme was prepared, the committee considered the programme itself, and the extent to which it might be said that a scheme of priorities has been drawn up related to the nation's needs. It appears that no adequate scheme exists. In view of the fact that the Minister is under constant pressure from local authorities to authorise the start of those parts of national schemes which pass through their own boundaries, the committee expected to find a strong control being exercised from the centre over the order in which schemes are begun. It was, therefore, surprised to learn that in respect of Britain's first motorway, Lancashire County Council had "taken a chance" and "done a certain amount of preliminary work" before officially asked to do so, at its own expense, later to be recouped, so that it was in a position to begin work earlier than had it waited for the Minister's instructions. Such enterprise, although commendable from the point of view of the local authority, has considerable dangers for the proper allocation of national priorities. It is difficult, says the report, to avoid the conclusion that, at any rate in the past, the first schemes to be ready have been the first to be approved.

In the course of the inquiry the sub-committee formed the impression that one result of the lack of a national plan has been an over-emphasis on motorways to the neglect of the problem of urban bottlenecks. The committee recommends that higher priority be given to schemes for improving urban traffic conditions.

Land Conveyancing

The County Surveyor of Nottinghamshire, while accepting the over-riding interest of the Minister in land acquisition, suggested to the sub-committee that time and expense could be saved by authorising the district valuer to discuss matters of detail, including accommodation works, with the agent authority, and so to avoid "correspondence through the present long line of communications." The sub-committee was informed that a radical reform of conveyancing procedure is shortly to be announced, but it was concerned to find that there appeared to be no evidence of any anxiety on the part of the Minister to complete contracts. There was no accurate forecasting of the volume of conveyancing likely to be entailed in the road programme, and the liaison between the Minister and the Treasury Solicitor (who handles conveyancing on his behalf) seemed to be incomplete. It is therefore recommended that steps be taken to improve the liaison between the two departments and to inject a sense of urgency into the handling of land conveyancing.

Administration of Road Programme

The concept of a "national route system for through traffic" which the Trunk Roads Acts and the Special Roads Act have sought to create implies a centralised direction, and the assessment of priorities amongst competing regional claims, which should result in a balanced and fair allocation of the resources available throughout the country. No special organisation exists to administer this programme direct and the Ministry has avowedly taken advantage of the pre-existing local authority system.

There are several sources of possible weakness in the present organisation. It is not suited to the implementation of large motorway schemes which straddle several counties. There is a danger that the long line of communication from the Minister, through the Divisional Road Engineer and the authority surveyor, to the local authority might cause delays and duplicated supervision.

The Ministry is fully aware of the need to by-pass the existing machinery for major motorway schemes, and has on several occasions employed consulting engineers and put out the work to direct tender. This practice appears to have been successful. The committee is satisfied that it would not be desirable to extend direct tendering to all trunk road work, because of the heavy burden that this would place on the Ministry which in many instances can be properly borne, in return for a not unreasonable agency fee, by local authorities. It considers, however, that there may be room for an extension of direct tendering at the other end of the scale, where the smaller authorities are concerned. A direct relationship between the Minister and certain county surveyors as consulting engineers might effect a streamlining in organisation and reduce delay and duplicated supervision.

Veto of Large Boroughs

The present anomalous position of London and the county boroughs should not be ignored. They contribute 25 per cent of the cost of work on trunk roads through their boundaries and remain the highway authority; a status which gives them an absolute power of veto on any suggestions for improvements made by the Ministry of Transport. Many county boroughs are only too anxious to carry out works, but the sub-committee was informed of a case of a major trunk road scheme (the Hammersmith flyover) being endangered by the reluctance of an authority to continue the development satisfactorily within its boundary.

The Minister's policy of notifying agent authorities of his programme for large schemes for two or three years ahead is a most helpful one, the committee finds. It regrets that no decision has yet been taken on the question of lighting motorways. The longer this decision is delayed, the greater will be the expense should it be decided to install lights. The decision should be made without delay.

The limitations in its order of reference make it almost inevitable that the report should be predominantly critical in tone, the committee concludes. However, it does give praise for much that the inquiry revealed. An estimate of more than £30 million, it is admitted, represents a very large programme of work, and the sub-committee was impressed with the amount and quality of the construction it saw in progress. The M.o.T. had shown itself willing to adapt its procedures (in such matters as direct tendering and simplified conveyancing) to cope with the problems created by the rapid expansion of the programme and the agent authorities are co-operating enthusiastically with the Ministry. The committee views with particular satisfaction the negotiation of long-term financial provisions with the Treasury, since it regards continuity of the programme as the largest single factor in economical working. But the trunk road programme has been inadequately prepared, it is to some extent out of proportion, and is not ideally organised. There is a growing awareness by the Minister and the Secretary of State of these deficiencies.

Principles of Selection

A memorandum submitted on behalf of the Minister of Transport says, dealing with the principles of selection of road schemes, that there was a considerable backlog of urgent schemes. Consequently, to begin with the earlier road programmes consisted of schemes which were ready to start and which could be carried out within the funds available. Other schemes were sorted into priority on the basis of reports from the divisional road engineers backed up by statistical information on road traffic and in some cases origin-and-destination surveys. At present, a general picture of what is needed had been built up and there are now many schemes at various stages of preparation; the momentum and flexibility of the programme depend upon this.

* First Report from the Select Committee on Estimates: Session 1958-59: Trunk Roads. (H.M.S.O. 6s. 6d. net.)

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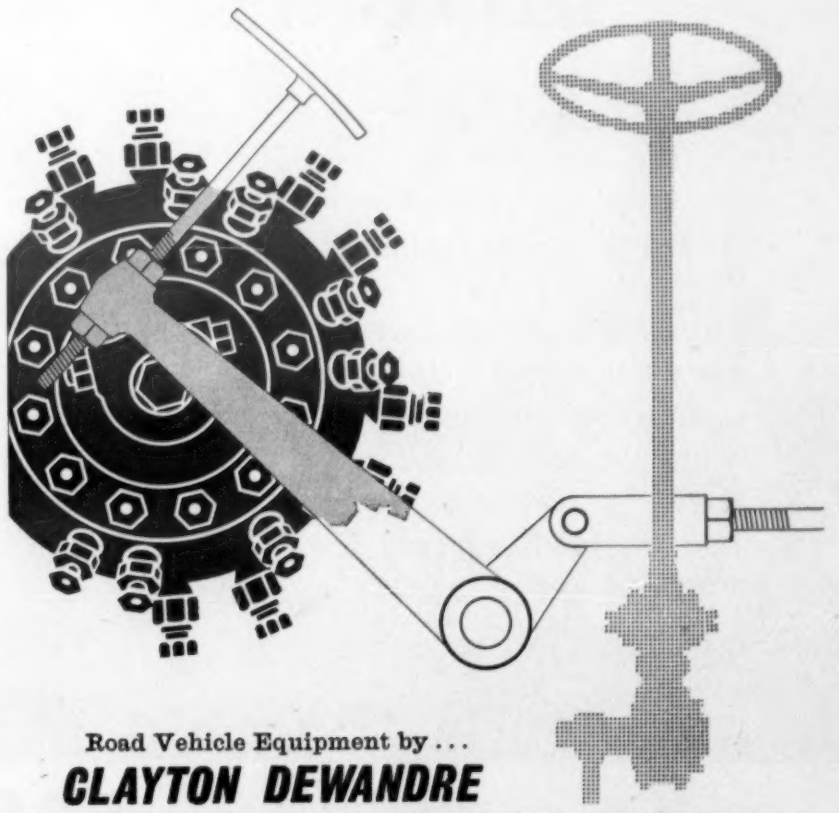

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LORRY—BUS—COACH

London Bus Wage Claim in Offing

FIRST steps in formulating a new wage claim on London Transport were taken at a delegate conference of Central area busmen last week. The conference decided to seek a £1 per week wage increase, payment for shift working and a reduction in standard working hours. London Transport has only recently rejected a proposal that the men should work a 40-hour week instead of 84 hours over an 11-day period. They submitted alternative proposals which would alter the weekly duty schedules. These were unacceptable to the busmen, who have stated they would be prepared to enforce their demand for working shorter hours by imposing bans on overtime and on working on their rest days. It is proposed that the bans should operate from October 1.

The next stage is for the claim to be considered by trolleybus, Green Line, and country service employees of London Transport. Provided they agree, the proposals will go before the executive of the Transport and General Workers' Union, who will make the final decision whether the claim shall be submitted to the London Transport Executive. A meeting of the national bus group committee of the union, representing London and provincial busmen, will have to be called in accordance with the agreement recently made on co-ordination of policy.

Despite the considerable service economies introduced last autumn and winter, which had the effect of equating crew requirements to availability, the problem of staff shortage has again reared its head. Loss of staff due to retirements, deaths and resignations has now reached the point where, it is stated, London is short of about 3,000 drivers and conductors. At the end of last year when the main cuts had been made the Central area was under strength by 1,100 drivers and conductors. Today the figure has grown to 2,300. On the trolleybus routes a further 400 drivers and conductors are needed. The Country bus services are about 300 under establishment.

Heavier Tippers on SA-Licence

AT a recent sitting of the Northern area Licensing Authority a Hexham haulier had a special A-licence for one of his lorries suspended for four months. The haulier, Mr. T. L. Herdman, was stated to have increased the unladen weight of two of his lorries by converting them into tippers.

Bus Ventilation in High Summer

VENTILATION on the upper deck of the Routemaster bus has not proved to be adequate in the conditions of this summer, says London Transport, and it has been decided to provide drop windows at the front of the upper deck of these buses. At present neither upper nor lower deck front windows have any opening sections. The RT-class buses have winding half-drop windows at the front end of both decks; they are locked in the closed position outside the summer months.

Passengers on new buses on a Brighton bus route found them oppressively hot during the recent heatwave and the Brighton, Hove and District Omnibus Co., Limited, is arranging to substitute a different type of ventilator on these buses. Explained Mr. H. G. Baker, the company's general manager: "Due to the abnormally hot summer, the low average speed of the vehicles compared with buses on long routes, and the fact that they are operating a town service in a built-up area has proved that the air intake to cool the radiators has been insufficient, resulting in heat permeating through the radiator casing into the bus. The ventilator windows of the hopper type have not proved adequate to dispel this heat."

Innocent Substitution of Heavier Vehicles

IN a further appeal decision concerning the substitution of heavier vehicles on special A-licences the Transport Tribunal, in a written judgment delivered last week, has reversed the decision of the Northern area Licensing Authority to revoke two special A-licences and ordered that they be suspended until August 31 and September 30 respectively. This order is based on the opinion that the appellant cannot be considered guilty of deliberate wrongdoing. The two substituted vehicles involved were converted from four-wheelers to six-wheelers without notification to the authority at the material times, the operator being Mr. T. A. Metcalfe.

Mr. Frank Milton, Northern area secretary of the R.H.A., who was present by order of the registrar of the Tribunal, said he had no recollection of seeing the appellant, but he had for years expressed the view that it was unnecessary for an operator who had made such structural alterations to a vehicle, after it had been licensed, as increased its weight to notify the licensing authority. His advice would have been to that effect; he had, however, lately ceased to advise to this effect. The Tribunal rejected the submission of Mr. Croft, for the appellant, that one vehicle could be distinguished from the other because it was operated for 14 months at the unladen weight expressed in the licence, whereas the other was converted immediately. It further rules that, in accordance with the decision in *Tribe v. Burton*, the appellant must be considered to have purged his wrongdoing and his previous irregular conduct must be disregarded in the pending application for an ordinary A-licence. If the application is not determined before the suspensions expire the vehicles should be operated in their present form under their special A-licences.

When the appeal opened before the Tribunal a Mr. Barr, instructed by the Treasury Solicitor on behalf of the Minister of Transport, objected to the possible production on behalf of the appellant of an internal document written in the licensing authority's office, or any oral evidence as to its contents. The document was not produced. He also submitted that any evidence as to a conversation between the clerk to the licensing authority and Mr. Milton would be inadmissible as irrelevant. The Tribunal decided that as it was not alleged that the clerk had said anything to the appellant the question whether he had said anything to Mr. Milton was wholly irrelevant. The clerk, although ordered to appear, was not called as a witness.

An experimental A.E.C. Regent Mark V 72-seater for Liverpool Transport weighs 8 tons 4 cwt. unladen; right, two of 17 Leyland Atlantean 78-seat buses purchased by Devon General for its Newton Abbot—Torquay—Paignton—Brixham service

Corby Goes Round in Circles

TWO groups of town circular bus routes were started in Corby, Northants, on August 30. They constitute a reorganisation of town services previously operated by United Counties Omnibus Co., Ltd., and are termed the East and West Circular services. There are variations to serve the Lancashire Steel and Stewarts and Lloyds works and Rowlett School.

Ribble No-Smoking Condition

AFTER a full day's hearing the North Western area Traffic Commissioners adjourned to a date to be fixed consideration of their proposal to impose a condition on the road service licences of Ribble Motor Services, Limited, prohibiting smoking on the lower deck. Mr. F. Williamson, chairman of the commissioners, said that of 40 operators, most already prohibited smoking on the lower deck. Mr. J. V. M. Heppell, Deputy Town Clerk of Crosby, said his council decided to press for a ban after an approach by the Society for Non-Smokers. He was supported by Bootle and Great Harwood.

Publicity for Scottish Exhibition

CONDUCTORS in the Scottish Omnibuses Group have been asked by the chairman, Mr. James Amos, to take on the additional job of "selling the Scottish Industries Exhibition" to their passengers in towns and villages throughout Scotland. Parties hiring coaches to travel to the exhibition, which is being held in the Kelvin Hall, Glasgow, from September 3 to 19, will receive special rates, which might be as 25 per cent cheaper than the normal hire of a coach.

Bus Terminals in Dominica

IN the development of plans to widen and improve the scope of transport, the Dominican Government proposes to build up a network of bus stations throughout the republic. By arrangement with the Department of State for Transport and Communications, the Dominican Municipal League is working on a plan for such terminals. These have been divided into categories covering various services and depending on the volume of traffic. The needs of each town will be calculated according to passenger traffic and a standard terminal allocated. A large city may not necessarily need a large bus station—it will depend if its floating population is big or small. A terminal for a small volume of incoming passengers will have a working capacity of four buses at 15-min. intervals—i.e. 16 buses each working hour, arriving and leaving. The loading platform will be laid out in a saw-tooth pattern.

Stations will be rectangular with waiting room, transit room, a small restaurant, toilet accommodation and a parcels office. The enclosed areas are thus strictly limited to the main essentials, and construction costs are cut to a minimum. The terminal will be easy to maintain and also permit easy adaptation and addition. Its roof is in the form of an upturned "W" and its dimensions and uncluttered design are most attractive.

Bus and Coach Developments

W. H. Stephens, Lanner, Redruth, seeks the licences of H. N. Trewren (Marigold).

Hughes Brothers, Llanailin, seeks the Oswestry—Groesffordd and Oswestry—Rhiwlas services of the late P. Edwards.

Reading Corporation proposes to replace its Woodcote Road—Berkeley Avenue service by extending the Earley (Beech Lane)—Station service to Woodcote Road and by operating one weekday journey an hour of the Stations—Coley Park service to Berkeley Avenue instead.

Western Welsh Omnibus Co., Limited, seeks the excursions and tours from Milford Haven and Neyland of Prendergast Motors, Limited.

Don Everall, Limited, applies for licences of Samuel Johnson (Supreme), Limited, Stourbridge.

G. Keen and Sons, Heddington, Calne, seeks the licences of L. and J. Sheppard, Broad Town, near Swindon.

J. and E. Shutt, Burnley, wishes to incorporate excursions and tours from Burnley and Nelson by T. Helliwell and Sons, Limited, in its own group.

Porthcawl Omnibus Co., Limited, applies for the local Lias Road—Woodlands Avenue service of the Western Welsh Omnibus Co., Limited.

On a visit to the rolling stock display at Glasgow Central linked with the Scottish Industries Exhibition, Sir Brian Robertson, chairman of the B.T.C., announced that an order had been placed with Denny of Dumbarton for a replacement ship for *Princess Victoria* on the Stranraer—Larne service. There will be accommodation for 1,400 passengers and 79 cars.

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MC34

THE NEXT FIVE YEARS

Modernising British Railways

2—TRACK AND ELECTRIFICATION*

DURING the period 1959-63, work on British Railways track will be accelerated to meet the demands of new forms of motive power and more intensive services. The aim is to produce a track which will be stronger, last longer and require less day-to-day maintenance; to this end the depth of ballast will be increased and drainage improved. More use made of long-welded rails with improved types of sleepers and of points and crossings made of manganese and other forms of harder steel with improved wearing qualities. The output of long-welded rails will have been increased to some 320 track-miles a year by 1963, when three additional welding depots will be in service to supplement the three already in production. Concrete sleepers will be laid at the rate of over 100 track-miles a year. Increasing use will be made of mechanical plant for track maintenance, and the total number of permanent way staff will be further reduced; it is intended that incentive bonus schemes will be universally adopted for track maintenance.

In the next five years, a very heavy programme of engineering work will be needed in connection with electrification. For instance, on the West Coast main line between Euston, Birmingham, Crewe, Manchester and Liverpool, the depth of ballast must be increased over many sections aggregating more than 1,400 track-miles, while some 700 bridges will need to be raised or reconstructed and nearly 14,000 yards of tunnel enlarged or opened out to obtain increased clearances for overhead equipment. Among the major schemes already in progress on this line are the opening out of the tunnels at Stockport and the lowering of the tracks on the goods lines which pass under the main lines at Crewe. Phase 2 of the Kent Coast Scheme will necessitate the provision of additional tracks in the Folkestone area to enable expresses to overtake other trains without undue delay. As part of the electrification scheme for the remaining steam-worked suburban lines from Liverpool Street, the Churchbury loop between Edmonton and Cheshunt will be developed as a new route for certain suburban electric trains to and from Liverpool Street. A burrowing junction at Colchester will provide non-conflicting paths for Liverpool Street —Clacton and Ipswich—Liverpool Street trains.

East Coast Main Line

The track capacity of the East Coast main line from Kings Cross will be increased by the removal of bottle-necks at various points. The work between New Barnet and Potters Bar is complete, and further widenings will take place at several points on this route. Peterborough North station will be reconstructed to give more accommodation and ease the existing severe speed limit over the curved approaches, and a start will be made on the reconstruction of Grantham. Flyovers are proposed at Retford and Welwyn Garden City and an underpass at Hitchin to avoid conflicting movements and enable a more intensive service to be run. An additional running line between Pilmoor and Alne, north of York, will be completed in 1960. Work will then start on an additional running line to improve freight train working in the York station area. The raising of minor overline bridges, to enable deeper ballast to be provided, will continue, to promote high-speed running.

On the West Coast main line from Euston, in addition to those works directly connected with electrification, line capacity will be increased by the construction of flyovers at Bletchley and Rugby. North of Carlisle on the same line, the Esk Viaduct is being reconstructed with provision for extra lines to be added when a new marshalling yard is built at Carlisle. In the Scottish Region, a connection between the former L.N.E. and L.M.S. systems in the Edinburgh area will come into full use in 1960 and will enable a much better service to be provided for mineral traffic. The capacity of the main line from Paddington will be increased by the construction of an extra running line through Reading General station and by new loops in the Didcot—Swindon area. Farther west, the diversionary route over the Severn Bridge between Lydney and Sharpness will be developed to relieve the congested Severn Tunnel.

For Mineral Traffic

Improved operating facilities to be provided in the Port Talbot area include an additional running line at Margam, quadrupling through Port Talbot station, a new connection to the Treherbert line and colour-light signalling over the 8-mile stretch between Pyle and Briton Ferry; four marshalling yards and nine signalboxes will be closed, and there will be substantial savings in train working costs. A new route is being developed for iron ore traffic from the Midlands to South Wales by providing connections between the former G.W. and L.M.S. lines at Fenny Compton (north of Banbury) and at Stratford-on-Avon; associated with this scheme is the installation of new reception sidings at Honeybourne.

The opening of a new colliery at Cynheidre, near Llanelly, will entail the almost complete realignment of the Llanelly and Mynydd Mawr branch, which has severe gradients and sharp curves; the new colliery comes into production this year and output will reach about one million tons a year by 1970. Work has started on a new branch some four miles long to a colliery at Bevercotes, near Retford: this will convey about one million tons of coal a year when the colliery comes into full production in 1962-63. Another new branch, two miles in length, to serve Cotgrave Colliery in the same area, should be carrying about one million tons of coal a year by 1965. Sidings and track to handle increased industrial traffic at Sandbach, near Crewe, will be completed in 1959. A further scheme is in hand to provide better facilities for steelworks traffic at Irlam (Lancs).

Signalling and Telecommunications

Recent technical advances, including developments in electronics, will enable the modernisation of signalling and telecommunications to go ahead rapidly and more cheaply during the next five years. Smaller and lighter apparatus, prefabricated on the unit replacement principle, should become available, leading to reduced assembly costs and easier maintenance. Simplification and standardisation of equipment is being intensified. During 1959-63 nearly 3,000 track-miles will be equipped with colour-light signals and some 125 new signalboxes will be built; about 700 old signalboxes are expected to be closed during the period. Many lines will be resignalled during the course of electrification. On the West Coast main line, major power-operated signalling installations will be provided at Rugby, Nuneaton, Coventry, Birmingham, Wolverhampton, Stoke-on-Trent, Warrington, Liverpool and Preston. Colour-light signalling in connection with the Kent Coast electrification is already in use between Herne Hill and Ramsgate, and will be in operation between Hither Green (near London) and Dover by 1962.

Work on a similar scale will be needed in connection with the suburban electrification schemes in the Eastern and Scottish Regions, the latter including the remodelling and resignalling of the layout at Newton (Lanarkshire). By 1963 the signalling on almost the whole of the 180-mile stretch of the East Coast main line between Doncaster and Berwick, and on the Western Region main line between Paddington and Reading, will have been modernised and colour-light signals provided. Other large schemes due to be completed in the next five years include those at Manchester Victoria, Port Talbot and Newport (Mon.), all in association with track remodelling; Glasgow Central (High Level), where the resultant improvement in line capacity will enable the cost of renewing the older of the two bridges over the Clyde to be avoided; Birmingham and Plymouth; Leeds, as part of the Central and City station amalgamation scheme; and at Eastleigh, Portsmouth and Guildford.

C.T.C. and A.W.C.

Centralised traffic control will be introduced on a number of routes in the next five years, enabling long stretches of single line with intermediate passing loops to be controlled from one signalbox. The double-track line between York and Beverley, near Hull, will be converted to single track, for operation by C.T.C. with considerable economy. Subject to the approval of the Ministry of Transport and Civil Aviation, most of the level crossings on this line will be provided with lifting half-barriers, automatically operated by the trains, instead of gates; and schemes are being developed to install half-barriers at level crossings in other regions. The Sheerness branch in the Southern Region is already being operated by centralised traffic control. Other sections proposed to be converted to C.T.C. operation by 1963 include the Central Wales (Llandilo—Craven Arms), Carmarthen—Johnston and Honeybourne—Cheltenham lines of the Western Region. Of these, the Central Wales route is of particular importance because it affords a direct link between South-West Wales and the industrial North-West.

By the end of 1963, the first five-year plan for the installation of a standard system of automatic warning control should have been completed and a start made on the second five-year plan. By then, more than 10,000 locomotives and multiple-unit vehicles should have been fitted with cab equipment, and some 1,800 route-miles of line with ground equipment; these are additional to the routes and vehicles already equipped with the Western Region system of automatic warning control. The lines to be equipped with the standard system by the end of 1963 include: Euston—Liverpool, Manchester and Glasgow; Kings Cross—Edinburgh; Liverpool Street—Norwich (via Ipswich); Waterloo—Bournemouth and Exeter; and Edinburgh—Glasgow.

Modernisation of the telecommunications network will be accelerated by replacing manual telephone exchanges and omnibus circuits with automatic exchanges incorporating local and trunk dialling, and by making increasing use of facsimile reproduction and of teleprinters, including automatic teleprinter exchanges. For example, the new exchange at York will afford subscriber trunk dialling facilities with new exchanges at Middlesbrough and Newcastle, possibly by means of a microwave radio link. Subscriber trunk dialling will also be provided at new exchanges at Hull and Leeds. One thousand miles of open-wire pole routes will be replaced by cabling during 1959-63.

Motive Power

The next five years will see a marked acceleration in the replacement of the steam locomotive by diesel and electric traction. Steam traction should have disappeared completely from East Anglia and South-Eastern England, from the Western Region lines west of Newton Abbot, and from most of the Scottish Highlands. Very few steam locomotives will be left in the Bristol area, on the East Coast main line and on the St. Pancras main line south of Leicester. The continuing withdrawal of steam locomotives will enable watering and coaling facilities and turntables to be progressively eliminated, and maintenance facilities to be simplified.

The electrification programme given in the White Paper of 1956 has been reviewed; some changes in priority have taken place since then, and the completion dates of some of the schemes have been modified. In particular it is hoped to accelerate by one or two years the date for completing the whole of the electrification of the London Midland Region main line from Euston to Birmingham, Crewe, Liverpool and Manchester. The concentration of resources on this project will mean that electrification of the East Coast main line from Kings Cross will not be undertaken during 1959-63, although a start will be made on the Great Northern suburban services. Part of Phase 2 of the Kent Coast Scheme will be finished in 1961, a year earlier than envisaged.

Electrification Programme

The revised electrification programme requires that electrification should be completed on some 600 route-miles during 1959-63, and that work should be in progress on about a further 600-700 route-miles at the end of that period. The revised completion dates for the London Midland Region are Crewe—Manchester, September, 1960; Crewe—Liverpool, September, 1961; and Euston—Birmingham—Crewe, 1964. The latter is an accelerated date, subject to review. In the Eastern Region the Colchester—Clacton and Walton scheme has already been completed in March last; the rest of the schedule is Liverpool Street—Southend and Chelmsford conversion from direct to alternating current on 50 cycles, September, 1960; Liverpool Street—Enfield and Chingford and Hertford East and Bishop's Stortford, September, 1960; London, Tilbury and Southend line, June, 1961; Chelmsford —Colchester, March, 1962; Moorgate (Northern

(*Continued on page 9*)

* No. 1 appeared August 29.

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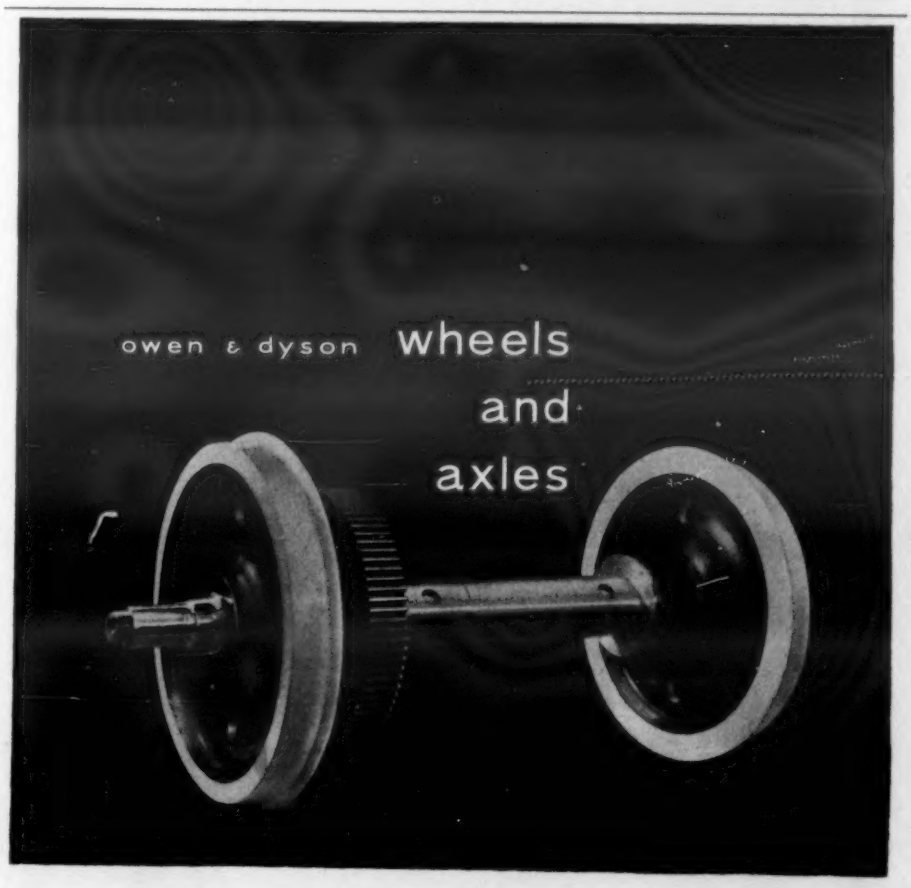

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SERVICE experience with diesel engines specially developed by Rolls-Royce, Limited, for railway traction applications has demonstrated that this development has been successful in conferring long reliable life, and it is recommended by the company that these engines be overhauled when 9,000 hours have registered on the engine service counter. On shunting duties 9,000 engine service counter hours (or mobile hours) are equivalent to about 16,500 shift hours, during which a locomotive would have a driver allocated to it—or to about 13,750 hours if deductions are made for meal breaks and light running to and from the sheds. On single-shift working this represents seven years' service, or proportionately less for two- or three-shift working. In railcars on ordinary services with maximum speeds of 70 m.p.h. and gradients of up to 1 in 50, 9,000 engine service counter hours are equivalent to 250,000 miles.

The engines can be left working longer than 9,000 e.s.c hours, but it is recommended that overhauls at 9,000 hours ensures a satisfactory life without unexpected breakdowns. Engines can be overhauled an indefinite number of times and certain parts such as crankshafts can last up to the third overhaul. Normal attention required during the 9,000 e.s.c. hours is limited to top decarbonising at 3,000 e.s.c. hours, changing the injectors at 1,200 e.s.c. hours and to replenishing periodically oil and cleaning filters and so on. All of this can be done while the engine remains in position.

CHEMICAL MILLING OF ALUMINIUM

Greater Accuracy: Reduced Costs

RAPID and successful development of a machineless process for producing aluminium parts is the subject of an article in the March edition of *Aluminium News*, the journal published by Aluminium Union, Limited, for companies associated with Aluminium, Limited. Although first tested experimentally on aluminium rocket castings less than five years ago, the process is already said to be producing better parts at lower cost for aircraft, missile and other fabricators using light metals. Basically the process relies on the chemical milling or etching which occurs when the part to be formed is submerged in a bath containing an alkali solution, the sections of the part not to be reduced being protected by plastics or other impervious material.

North American Airlines did experimental work on the process in 1953 and was granted a patent in 1956. The metal-dissolving etchant solutions and masking materials have largely been developed by the Chem-Mill division of Turco Products Inc., of Los Angeles, which company was granted a licence by North American in 1954 and is the sole licensing agent for 17 issued patents covering various aspects of the process. The American aircraft manufacturers are all using chemical milling for producing intricate aluminium parts and it is reported that the process gives greater latitude in designing parts, that the designer can expect closer tolerances, that it generally delivers a better product and is often more economical than conventional methods.

COACH TOUR OF LONDON-YORKSHIRE MOTORWAY BY INSTITUTE OF TRANSPORT GROUP

Members of the Northampton group of the Institute of Transport were recently guests of John Laing and Son, Limited, on a 20-mile tour of the London—Yorkshire Motorway. The party travelled in two United Counties Bristol-E.C.W. MW6G coaches of the type which it is hoped to use on the Nottingham—London service operating via the motorway. This view was taken from the leading coach

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FOR BOX VANS

By using curved-section cant rails and corner pillars with double-curvature corner castings on this box van body, the cost of panel beating is eliminated.
Moreover, the stucco embossed panelling needs no painting and little maintenance, whilst the lightweight aluminium construction cuts running costs.
The body was constructed by H.C.B. Engineering Limited of Totton, Southampton, based on the latest British Aluminium design. The standard BA Road Transport Sections used are available from stock.

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AP 178

MODERN AIRWAYS and COMMERCIAL AVIATION SECTION

LARGE TURBOPROP FREIGHT AIRCRAFT

The Short Britannic

ALTHOUGH the new large freight aircraft which is to be built by Short Brothers and Harland, Limited, is to be known as the Britannic, it will not be as closely related to the Britannia as its name might suggest and as was contemplated in earlier stages of the evolution of the design. Originally it was to have had the Britannia wing, tailplane, undercarriage and various systems combined with a fuselage able to accommodate large military vehicles and equipment and the 1 and 2 with all-up weights of 180,000 lb. and payloads of 60,000 lb. developed through the 3 with 195,000 lb. and 75,000 lb. to the 3A. This machine, which is being developed for R.A.F. Transport Command, has an 85,000 lb. payload while its all-up weight is put at 218,000 lb.

Versatility the Aim

Powered by four Rolls-Royce Tyne turboprop engines developing 5,730 t.e.h.p. each the aircraft is designed to cruise at 340 m.p.h. A great deal of research was carried out on the relative merits of jet and turboprop power and it was finally decided that the latter was the most appropriate. The size and shape of a fuselage capable of carrying a really substantial payload and accommodating awkward and bulky types of cargo was felt by the manufacturers to be unsuitable for really high jet speeds, while the fuel requirements of a jet-engined machine would be such as to involve building an aircraft one third as large again in order to provide, inter alia, sufficient fuel capacity. Development costs must inevitably be far greater and in the civil field such an aircraft would tend to be hopelessly uneconomic, except conceivably on a few routes in the U.S.A. where freight traffic can be guaranteed and utilisation kept abnormally high.

In both the military and civil fields a freighter must be capable of landing at and taking off from second-class airfields. Here, the shorter runways preclude the use of jets, with their long, high-speed take-off and landing runs.

The aircraft can carry its capacity payload of 85,000 lb. over 1,150 statute miles at 340 m.p.h., with 20 per cent fuel reserves. With its capacity fuel load of 81,200 lb., it can carry 25,000 lb. of payload over 5,050 miles at 340 m.p.h., again with adequate fuel reserves. The Britannic has a large sloping ramp door at the rear giving unhindered access to any load that the fuselage can contain. There is also a large loading door on the port side at the forward end of the hold. Including the rear ramp, the hold is 80 ft. long, has a maximum height of 13 ft. 9 in., a floor width of 12 ft. and a maximum width of 16 ft. A removable floor enables an upper deck to be added over any section forward of the wing and also, in special cases, at the rear.

Large Freight Hold

The freight hold has, it is claimed, a cross section greater than that of any other aircraft in the world and is one of the most easily accessible. The level floor, which extends to the hinge of the loading ramp, is 63 ft. 4 in. long and 12 ft. wide. Over the greater part of this length, the hold is 13 ft. 9 in. high: where the main spar traverses the roof it is for a short space 12 ft. high. Overall cargo space is more than 10,000 cubic feet, and the curve of the fuselage walls provides additional stowage. Behind the level hold a further 21 ft. of cargo space is available. This is 12 ft. wide and with the upward slope of the ramp loading door, which forms the floor of this section, the height diminishes from 13 ft. 9 in. to about 10 ft. 6 in.

Lashing points of 10,000 lb. capacity are distributed over the entire floor in the standard 20 in. grid. The floor is stressed to permit carriage of most of the larger military vehicles without the use of load spreaders. Loads can be swiftly taken aboard by use of a winch and roller conveyer system. Stacker and fork-lift trucks can operate throughout the hold and a walkway on each side of the fuselage provides free access to all parts of the hold, facilitating regular inspection of cargo during flight. The Britannic can easily carry all types of missiles, from strategic offensive to light support weapons.

Operating Costs

The Britannic can carry 201 troops—153 on the lower deck, 48 on the upper with seats arranged six-abreast at a pitch of 35 in. As a high-density economy class civil transport the aircraft carries up to 249 passengers. In this role it achieves remarkable economy of operation on a seat-mile basis over stage lengths of up to 2,000 miles. Calculating the direct operating cost on the S.B.A.C. method, the pence per seat-mile on a 1,500-mile flight works out at .8, while the 1d. is not reached until 2,200 miles at high-speed cruising or 2,700 at long-range cruising speeds. For freight loads direct costs work out at 5d. per short ton-mile on a 1,400-mile flight.

Assuming 66 per cent load factor and indirect costs of 9d. per ton-mile the Britannic makes possible total operating costs which are roughly less than 1s. 6d. per ton-mile for a stage length of 2,500 miles—that is to say, half current European airline freight rates. Such figures, combined with reduced insurance rates, lower packaging costs, and lower breakage rates, could present a powerful argument for air-freighting goods at present sent by other means.

With the rear loading ramp open in the level position during flight, supplies can be rapidly dropped by parachute. For this purpose a roller conveyer system is installed. Typical airborne supply loads comprise two 25-pdr. guns, a 1-ton truck, and miscellaneous freight; or, two ¼-ton trucks, a scout car and miscellaneous palletised equipment. In the air ambulance role the SC.5 Britannic carries 57 stretcher cases and 96 seated personnel. Standard stretchers are arranged in tiers of three. Seats for 48 walking wounded are installed on the upper floor and for 42 on the lower, together with accommodation for six medical orderlies.

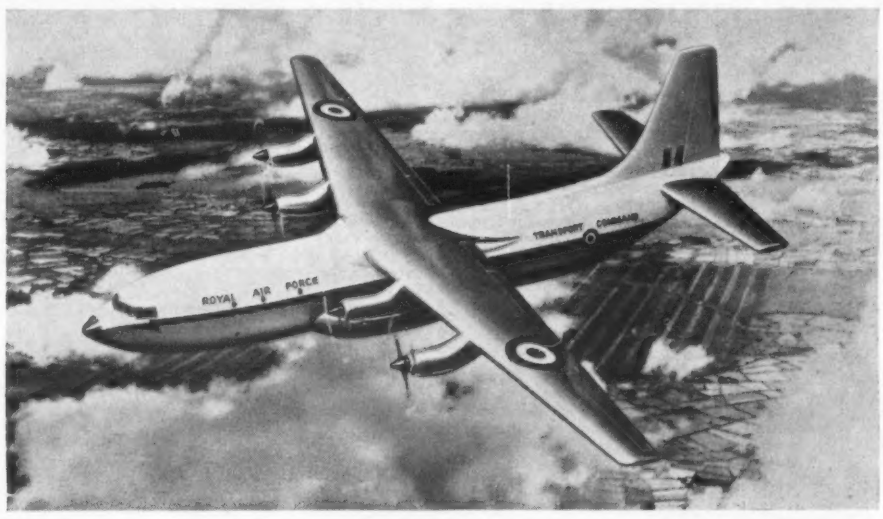
Use of Pallets

For transport of miscellaneous freight, prepacked palletised loads are essential for rapid loading and quick turnround. Straight-through rear loading ensures that the SC.5 spends a minimum of time on the ground. As far as possible, pallets are loaded in order of destination, but can if necessary be shunted around at intermediate terminals. Roller conveyers can be dispensed with and the load disposed in the hold by means of fork-lift trucks and similar equipment if particular circumstances make this method preferable.

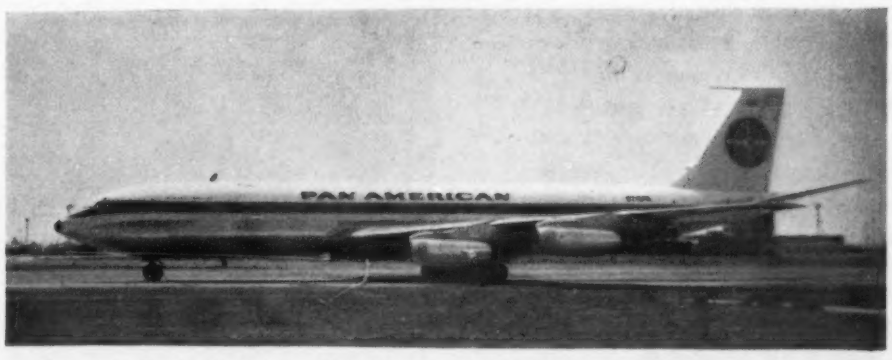
A Short Britannic sales group has been set up, based at Filton House, Bristol, and overseas sales are to be handled by the sales organisation of Bristol Aircraft, Limited. The volume of traffic which the capacity of the aircraft implies is clearly beyond the capacity of modern airports and for this reason Short Brothers and Harland realises that it is insufficient to sell a freight aircraft. It is necessary also to put forward an air freight handling system which will exploit the aircraft's potential. The company has, therefore, undertaken considerable research into the handling of air cargo and the probable layout of terminals.

The basis of the new freight handling and transport system envisaged is palletisation of all freight before loading, terminals exclusively devoted to freight and a conveyer system leading from receiving bay to aircraft freight deck. The

(Continued on page 11)



An artist's impression of the Short Britannic in flight



One of the Boeing 707-321 aircraft with which Pan American World Airways commenced a twice-weekly service from London to San Francisco over the so-called Polar route on August 28. One flight weekly operates via Los Angeles

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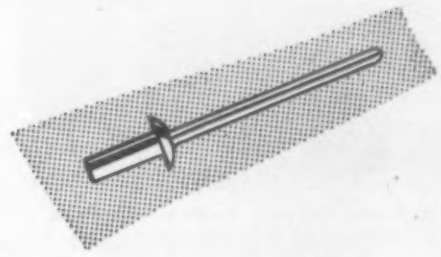

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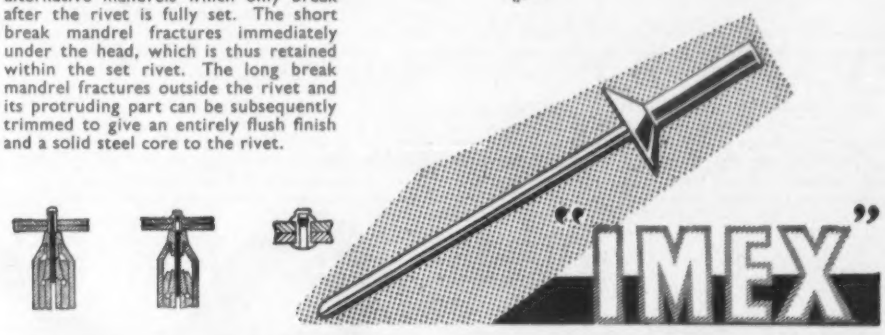

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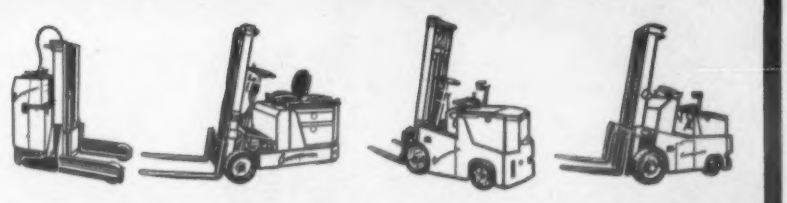

RE2-24 RE3-24 E2-20 E3-20 E4-20 E45-20 E6-24

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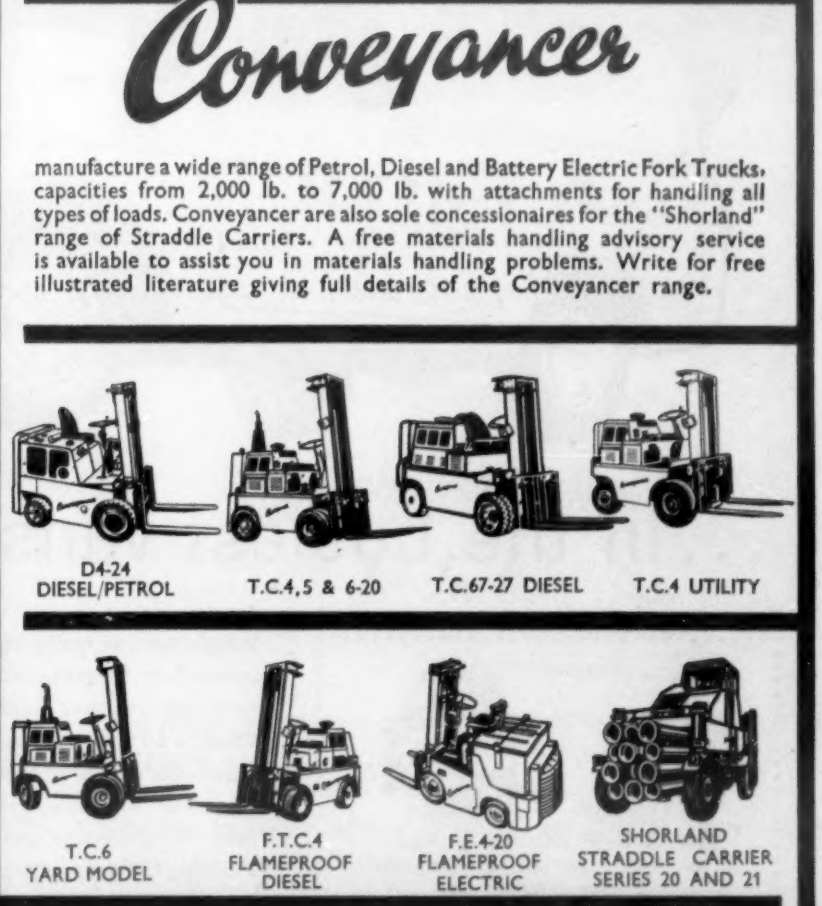

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Demonstrating Machine Tools

ALTHOUGH widely recognised as an effective and well-tried method of promoting sales, the use of demonstration vehicles by British firms is still less common than might be expected. For a very wide range of commodities it provides the best possible sales technique—since it enables the prospective customer to inspect and test for himself in his own workshops the claims made by

The latest Colchester Lathe demonstration vehicle on an A.E.C. Reliance chassis

the manufacturer. Furthermore it permits this to be done methodically by drawing up a programme of visits to cover either a given area or an entire country.

The value of this procedure in countries such as Africa and Australia is inestimable, since it frequently affords a customer the chance to make up his mind on the spot and so avoid the time and expense of a long and costly journey. Obviously a service of this kind is especially appreciated by people situated in remote areas; but wherever it operates the prestige of the manufacturer is enhanced, and the personal touch creates an element of goodwill which is often the decisive factor in securing an order.

Among the relatively few British firms which are convinced that the policy of sending demonstration vehicles overseas is a rewarding proposition, the Colchester Lathe Co., Limited, is especially notable with its claim as being the only manufacturer of machine tools in this country to maintain a fleet of vehicles which is used solely for the display of its own products in operation. Already it has mobile units operating in Australia, South Africa and on the Continent of Europe; and has very recently added to its existing fleet, a vehicle intended for work in Canada and North America.

Bodywork

The general appearance of the new vehicle resembles that of a normal luxury coach with exceptionally large and low set windows, an arrangement which was found to be most acceptable since it permitted excellent natural lighting within, and also enabled the machines displayed to be seen easily from the outside. The vehicle is in fact built on an ordinary A.E.C. Reliance export chassis, with right-hand control and synchromesh transmission. The only modification being the inclusion of certain extra floor members to facilitate the bolting through necessary to secure the display machinery. The engine is an ordinary A.E.C. six-cylinder direct injection diesel unit, and the choice of the chassis was made to secure a flat platform throughout.

The bodywork differs from that of a normal coach in having a large rear door, divided and hinged top and bottom to act as a platform with canopy. A further door in the conventional position at the forward end serves as an exit or

(Continued at foot of next column)

CEMENT IN BULK

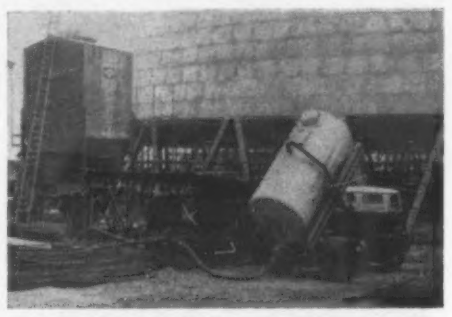
Door-to-Door Service by North Eastern Region

THE traditional packaging medium for the handling and movement of cement has been the multi-ply paper sack, but this is tending to be superseded by newer and quicker methods by which cement can be transported in bulk. Contractors concerned with large-scale projects like road construction, building new power stations and housing and factory developments, as well as the suppliers of ready-mixed concrete, require regular supplies of large quantities of cement to be delivered loose in bulk to batching plants in the shortest possible time and at the lowest possible cost.

To meet these requirements, British Railways, in close co-operation with the cement industry, developed the special wagon, known as the Presflo, which carries 20 tons of bulk cement and is discharged by means of compressed air. This method of bulk transport found immediate favour and since the introduction of the Presflo wagon in 1957 conveyance of cement in bulk has progressively increased. Now there are some 1,126 of these wagons in use and over 900 of them regularly carry bulk cement (the balance deals with flows of other bulk materials).

Use of Road Vehicles

To complete the chain of door-to-door movement the North Eastern Region of British Railways has introduced a specialised road-delivery service for cement in bulk linking with the Presflo



One of the B.M.C. bulk cement carriers operated in the Leeds area by the North Eastern Region discharging its load into a silo

rail vehicles and thus bringing the benefits of this modern method of transport to a wider range of cement users. Two vehicles have been specially constructed and are now in operation from Leeds Marsh Lane Goods Depot radiating over an area of some 10 miles. The new vehicles comprise a British Motor Corporation standard seven-ton 120-in. wheelbase chassis, powered by the B.M.C. 5.1 litre diesel engine, on which is mounted a light alloy, 210 cu. ft. all-welded cylindrical tank with dished ends, supplied and fitted by Bonallack and Sons, Limited, Basildon, Essex.

A Wellworthy Ricardo blower, driven by power take-off from the vehicle gearbox, is used to pressurise the Pressflo wagon and blow the cement into the tank of the road vehicle. The vehicle is filled through a 4-in. diameter flexible pipe from the end of the Pressflo wagon to a connection on the road vehicle leading into the top of the tank. Discharge of the load into silo at the final reception point is accomplished by compressed air supplied through a specially designed jet at the rear end of the tank assisted by tipping the tank itself. An aeration pad is incorporated in the base of the tank at the rear end to encourage the cement to enter the jet stream. Blown air is fed to both the aeration pad and discharge jet and controlled by the operator through gate valves.

Rate of Transfer

The Wellworthy Ricardo blower provides 300 cu. ft. of free air per minute at a maximum pressure of 12 lb. per sq. in. Cement can be transferred from the Pressflo wagon to the road vehicle at the rate of a ton a minute. Transfer from the road vehicle to the final delivery point on site can, normally, be achieved at the same rate, although this is somewhat dependent on the physical conditions obtaining on the site, particularly the length of piping through which the cement has to pass, and the height of the silo relative to ground level.

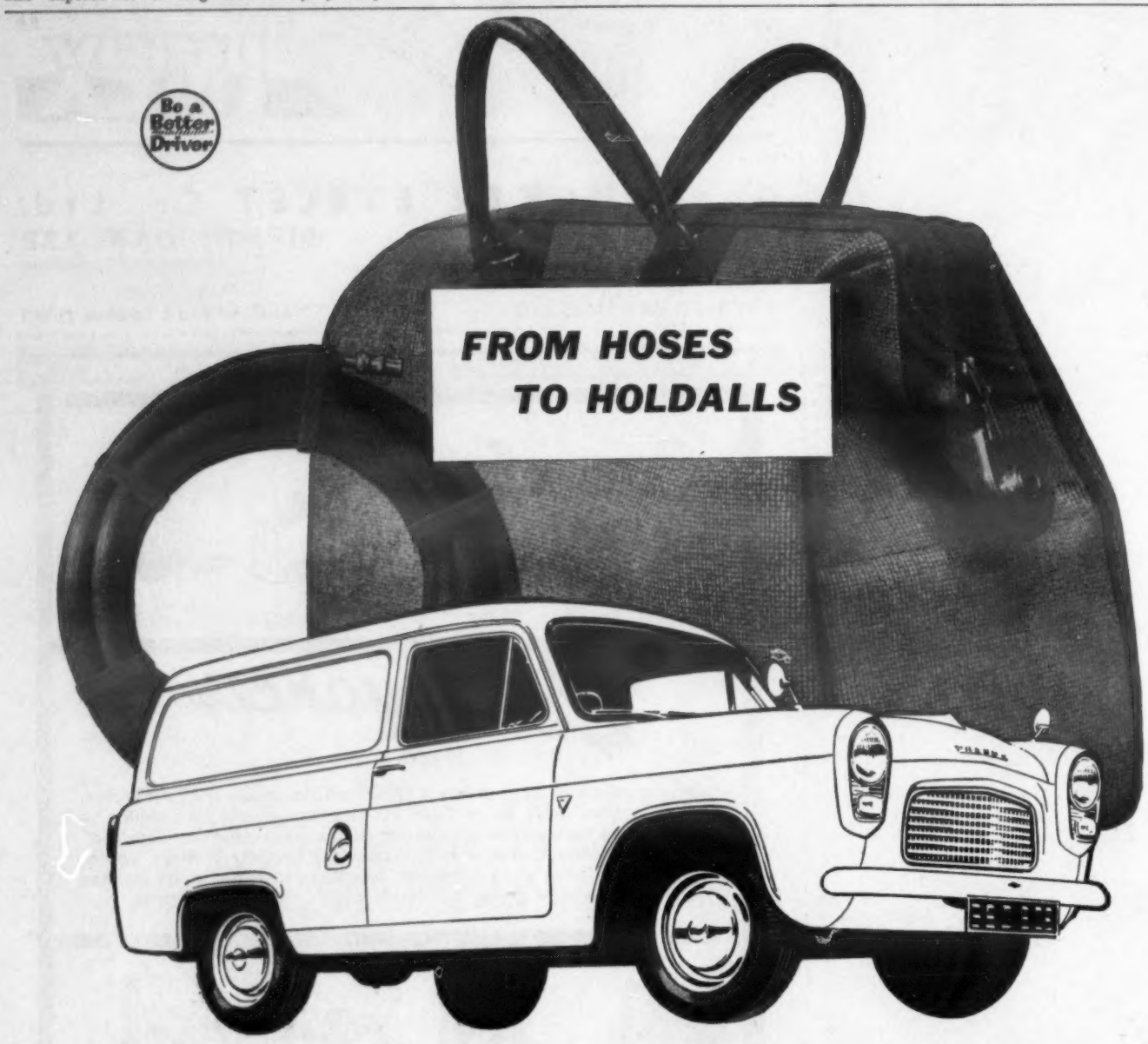
A new Dunlop adhesive designated S834 for the bonding of natural and synthetic foams, suitable for use in all types of transport vehicle upholstery, is now available. Details can be had from Dunlop Rubber Company, Compositions Division, Chester Road, Birmingham.

The lifting of certain dollar import restrictions has enabled Stanley Works (G.B.), Limited, Rutland Road, Sheffield, 3, to offer in this country a range of Stanley American-made power and hand tools. Power tools immediately available include routers, builder's saws, sabre saws, belt sanders and rubber cutters, while a very wide range of hand tools is offered.

★

Forthcoming Events

September 5.—Railway Students Association. Annual summer outing. Leave Guildford Station 10.45 a.m.
September 7-13.—Society of British Aircraft Constructors. Flying display and exhibition. At Farnborough. (Public days September 11-13.)
September 8-18.—Packaging Exhibition. At Olympia.
September 12.—Railway and Canal Historical Society. Visit to Leeds and Liverpool Canal.
September 13.—Omnibus Society. Visit to East Kent Road Car Co., Limited, Canterbury. 2 p.m.
Omnibus Society (Northern). Visit to United Automobile Services in Newcastle.
September 14.—Institute of Transport. Brancker Memorial Lecture by Captain E. V. Rickenbacker, "World Peace through Air Transportation." At 66 Portland Place, W.1. 5.45 p.m.
September 15.—Railway Correspondence and Travel Society (Birmingham). Paper by Mr. J. Clay, "Some Notable Speed Records and Test Runs." At Engineering Centre, New Street, Birmingham. 7.15 p.m.
September 16.—Railway Correspondence and Travel Society (West Riding). Paper by Mr. W. E. Waite, "The New Leeds City Station Project." At B.R. Social Club, Aire Street, Leeds, 1. 7.30 p.m.
September 17-26.—International Motor Exhibition. At Frankfurt.
September 19.—Railway Correspondence and Travel Society. Notts and Derbyshire Rail Tour.
Aviation Forum. Annual dinner. In Eagle Airways DC6C. Take off Blackbushe 7 p.m.
September 21-25.—Municipal Passenger Transport Association. Annual conference. At Edinburgh.
September 22.—Institution of Locomotive Engineers. Presidential address by Mr. R. A. Smeddle. At Federation of British Industries, 21 Tothill Street, S.W.1. 5.30 p.m.
September 26-27.—Railway and Canal Historical Society. Weekend visit to Wakefield area and inaugural meeting of Yorkshire local group.
October 12.—Institute of Transport. Presidential address by Mr. R. G. Grout At 66 Portland Place, W.1. 5.45 for 6.15 p.m.
October 12-16.—International Air Transport Association. Annual general meeting. In Tokyo.
October 26-28.—Road Haulage Association. Annual conference. At Bournemouth
November 12.—Public Transport Association. Annual dinner. At Connaught Rooms, Great Queen Street, W.C.2. 6.45 for 7.15 p.m



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READY FOR THE MOTORWAY

Intensive Tests of B.M.M.O. Coach

INTENSIVE tests of a coach, capable of speeds of 85 m.p.h., have been carried out by the Birmingham and Midland Motor Omnibus Co., Limited, in preparation for express services between Birmingham and London on the new motorway, due to be opened about the end of October. Midland "Red" has been licensed to operate three non-stop services daily, in each direction, cutting the present journey time from 5 hr. 20 min. to 3 hr. 25 min. Engineers at the company's Edgbaston workshops are busy modifying 10 of its C5 type coaches.

When this picture of the B.M.M.O. C5 coach on the Lindley test track was taken, the general manager, Mr. D. M. Sinclair, was at the wheel

These are particularly suitable, since they have disc brakes and independent rubber suspension, but to attain motorway speeds and keep to its fast schedule, the engine has been supercharged and the vehicles are fitted with an overdrive gearbox and high-ratio hypoid rear axle. A prototype has already covered more than 10,000 miles at the Motor Industry Research Association track at Lindley, near Nuneaton, testing steering, braking, stability, engine performance, tyres, etc. A typical test was to run the coach continuously for four hours at an average speed of 75 m.p.h. to check engine temperatures, transmission and tyres. Brake tests, during which the coach was slowed from 70 m.p.h. to 30 m.p.h. every 1½ min. for about two hours, showed that the disc brakes developed jointly by Midland "Red" and Girlings, Limited, justify their reputation for efficiency and freedom from fade. The coach was able to reach 70 m.p.h. in 70 seconds and speeds of 85 m.p.h. carrying over 10 tons, equal to a full complement of passengers and luggage.

The Next Five Years

(*Continued from page 5*)

City Line)—Hertford North, 1962-63; Kings Cross—Hitchin—Letchworth, 1963-64; Colchester—Ipswich and Harwich, after 1964; and Lea Valley line and Bishop's Stortford—Cambridge, after 1964. The first approach to Hertford and Bishop's Stortford will be by way of the Churchbury line. For the Eastern and North Eastern Regions on the Kings Cross—Leeds and York main line the date is to be after 1964.

In the Scottish Region the Glasgow suburban electrification is progressing. Completion of Stage I Phase 1 (Helensburgh and Balloch and Milngavie—Queen Street—Airdrie) is expected in 1960; Phase 2 (Glasgow Central—Cathcart Circle and Neilston and Kirkhill) in 1961; and Stage II (further routes south of the Clyde) during 1963-64.

On the Southern Region 750-volt d.c. system Phase 1 (Gillingham—Ramsgate and Dover) of the Kent Coast scheme has been completed, and Phase 2 (Sevenoaks—Dover and Ramsgate) is scheduled for 1961-62. All the schemes mentioned (except those in the Southern Region) will be carried out on the 25,000-volt a.c. system, and will benefit from technical developments in that field which will reduce the cost and improve the reliability of traction equipment. It is also expected that overhead line equipment can be simplified, and that improved insulating techniques will reduce the amount of engineering work necessary to obtain overhead clearances.

Diesel Locomotives

During the next five years, there will be a considerable increase in the stock of main-line diesel locomotives, and some 2,300 should be in service by 1963. The aim is the displacement of steam locomotives on an area basis, but until enough diesels are available to make this fully practicable, those available will be used on selected routes to secure the maximum economy or improvement in services as swiftly as possible. For example, 22 Deltic locomotives will replace 55 steam engines working express passenger trains between Kings Cross, Newcastle and Edinburgh, enabling these services to be substantially accelerated despite the restrictions on speed caused by the heavy programme of engineering work on parts of this line. Between Newcastle and Edinburgh 20 diesel locomotives are expected to replace 48 steam locomotives on the haulage of those expresses not already scheduled to be worked by the Deltics. All express trains between Edinburgh and Aberdeen should be worked by diesels by the end of 1959.

All 245 steam engines working on the Western Region lines in the West of England are planned to have been replaced by 115 diesels by the end of 1961, with substantial economies; a further 160 diesel locomotives will then replace 300 steam engines in the Bristol area. By 1962 it is expected that about 250 diesel locomotives will be in service in the London Midland Region, covering the lines from St. Pancras to Leeds and Manchester, and from Leeds to Bristol. The North Eastern Region will have about 350 diesel locomotives in use by 1963, replacing some 700 steam engines.

By 1963, a large part of the Scottish Region services will be worked by diesel traction, starting in 1960 with the areas of the former Highland and Great North of Scotland Railways, for which 75 locomotives and some 40 multiple-units will be required. In the following year some 140 locomotives are expected to be introduced on the lines from Glasgow to Aberdeen, Mallaig and Oban, and on freight workings in the Glasgow area. In 1962, nearly 200 locomotives and some 75 multiple-units should be introduced between Carlisle and Edinburgh, and in Fife and South West Scotland. Diesel traction will also be used in advance of electrification. For example, 32 diesel locomotives will work main-line trains to and from Euston pending the completion of electrification between London, Birmingham, Crewe, Manchester and Liverpool.

By the end of 1963, over 4,000 diesel multiple-unit vehicles should be in service compared with about 2,400 at the end of 1958, and the fleet should be almost complete. The new vehicles will be used on services in most parts of the system including the West of England, Central Wales, Scotland, East Anglia, Lincolnshire, Lancashire and Yorkshire, and on London suburban services from Kings Cross, St. Pancras, Marylebone and Paddington. Further substantial additions to the fleet of diesel shunting locomotives should ensure that by 1963 the elimination of steam engines from regular shunting duties will have been virtually accomplished.

LETTER TO THE EDITOR

Potentialities of London Wall Road

SIR,—The new London Wall has now been opened. It is indeed a fine road, although it is a matter for regret that vehicle access is permitted from any transverse road between Moorgate and Aldersgate. Nevertheless, there is a major defect, inasmuch as there is no eastern continuation, and the western exit is to run into Ludgate Hill, to cut Newgate Street and eastbound traffic from Fleet Street to Cannon Street, and thence to clog Ludgate Circus, it would appear.

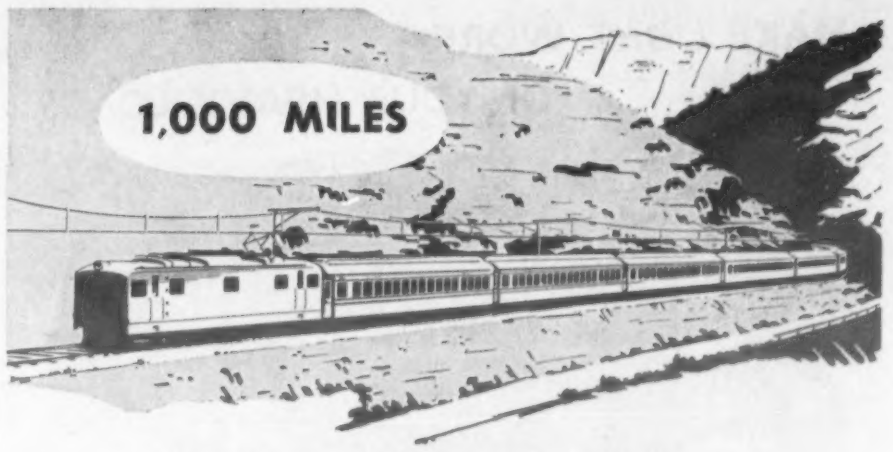
A view of the recently-opened section of Route 11 between Aldersgate and Moorgate taken at 4 p.m.

The old Roman road from Uxbridge to Colchester must have run straight along Oxford Street, Barbican, Bethnal Green Road, Roman Road, the "old ford" and Romford Road, although Guildhall apparently has no documentary evidence of this. This sensible line could be replaced by a route from Saint Sepulchres, via Little Britain, London Wall, Camomile Street, Wentworth Street and Old Montague Street, avoiding congested Aldgate and Gardiners Corner, and producing a *new* eastern exit, independent of the Strand, Cornhill, Commercial Road route. As yet, there is little expensive new property to obstruct such a logical extension. The old City wall, as strong as when it existed, still acts as a throttling collar on all uninhibited road improvement in the square mile.—Yours faithfully,

F. A. RULER.

48 *The Knoll,*
Hayes, Bromley,
Kent.

The Editor is always glad to receive letters from readers on subjects germane to the transport industry, but these should be written as concisely as possible. The opinions expressed therein must not, however, be regarded as having editorial endorsement. Where correspondents desire to use a nom-de-plume it is essential that the Editor should be informed of the name and full address of the writer as indication of good faith.



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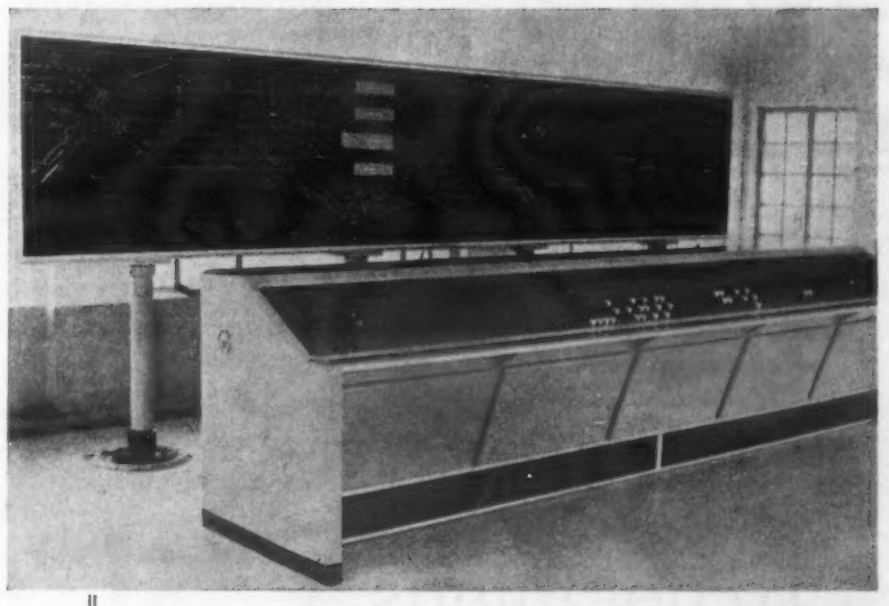

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NEWS FROM ALL QUARTERS

Halifax Bottleneck to Go

Halifax Corporation has received a grant towards the cost of improving part of Broad Street on route A58, a vital link between the West Riding of Yorkshire and Lancashire. The lower end of Broad Street is not wide enough for present day traffic. In fact, it is only 38 ft. wide and forms a bottleneck between the upper part of Broad Street and Northgate.

Finchley Road Unloading Ban

An experimental scheme to improve traffic flow in Finchley Road has been introduced this week under regulations made by the Commissioner of Police of the Metropolis. It is expected to improve peak traffic capacity on the route between Hendon Way and Swiss Cottage. All standing vehicles, including those loading and unloading, will be banned, during peak traffic periods only, at three critical points on this section of the route, at Fortune Green Road, Canfield Gardens and College Crescent.

East Kilbride Trains Use St. Enoch

Since August 31 the Glasgow—East Kilbride train services have been using St. Enoch instead of Glasgow Central Station and diesel trains have replaced the steam trains with the exception of three services in each direction during peak periods of the day. The diversion was necessary to reduce the number of trains leaving and entering Central Station and will assist progress on the resignalling of Glasgow Central High Level Station, the completion of which is an essential step in the Glasgow suburban electrification on the south side of the river.

Belgian Road Programme

A Belgian road policy aimed at handling the traffic expected in 1980 was announced last week at the National Road Congress at Liége by a Ministry of Public Works spokesman. Belgium has 125 miles of motor road; but by 1980 the plans provide for 1,000 miles. Existing motorways consist of twin two-lane carriageways. Plans for the future include 620 miles of similar design; 295 miles of twin three-lane, and 50 miles of dual four-lane carriageways. A long-term plan was being worked out to provide the necessary money in the Road Fund, as and when it was needed.

Manchester Passengers to View Progress

To keep passengers in touch with the progress of work at Manchester London Road Station four special viewpoints are being provided in the temporary bridge structure between the station and adjoining Mayfield Station. The two windows on the right-hand side (from London Road) will enable the public to watch the construction work on Fairfield Street bridge, while points on the other side will provide views of the new signalbox and general permanent way remodelling of the station approaches. The new temporary footbridge has been constructed to give clearance for the installation of overhead wires. A new permanent footbridge will be constructed later connecting platforms Nos. 1 to 14 of the new station; there will then be no connection with Mayfield, as this terminus will be used solely for parcels traffic.

Work Begins on Stoke Depot

The London Midland Region has begun work on the eighth of the new goods depots which are being provided to enable the region to speed up its freight services. The depot is at Stoke-on-Trent and it will be a concentration point for the sundries traffic now dealt with at Stoke, Hanley, Longport, Longton, Newcastle, Leek, Congleton, Stone and Stafford. A direct area collection and delivery service to traders by road vehicles will be provided.

Midland No. 1000 Runs Again

The first of the Midland Railway 4-4-0 compounds, No. 1000, has been completely restored in its original livery and is to be employed on special trains, principally for railway enthusiasts. No. 1000 was built in 1902 and was retired in 1951 after having done some 1¾ million miles. It took some 350 members of the Midland area of the Stephenson Locomotive Society from Birmingham to York on August 30.

Glamorgan Road Schemes

Road schemes numbering 150 and estimated to cost £7,433,500 are included in a five-year programme of the Glamorganshire County Council Roads and Bridges Committee. A scheme for the improvement of the centre of Port Talbot would cost £652,000 and a by-pass for Llantrisant £450,000. Other proposals include diversions in the centre of Pontypridd (£350,000), the first stage of the Bridgend inner by-pass (£350,000), approaches to Porthcawl (£375,000) and the outer by-pass for Llantwit Major (£400,000).

New Station at Harlow

The 50,000 people who live in Harlow New Town, in Essex, are to get a new station besides an electric train service to Liverpool Street towards the end of 1960. The two small railway stations in the district, Harlow and Burnt Mill, are neither of them able to absorb such a sudden expansion of population. Burnt Mill had the better situation in the layout of the growing estates, and the new station, Harlow Town, is now being built on that site. It is expected to be completed by early next year. The other station at Harlow will be renamed Harlow Mill. There will be four tracks through Harlow Town, up and down main lines and passing loops, with two island platforms.

New London Motorway Proposals

A four-mile motorway is planned through the borough of Hendon to cope with the greatly increased traffic expected to pass through Hendon as a result of the opening of the first section of the London—Yorkshire motorway later this year. It would cost some £3 million and is based on recommendations by Messrs. W. S. Atkins and Partners, the consulting engineers, asked by the Ministry of Transport to report on the problem. The motorway would start from a point where West End traffic converges on A1 near Page Street, follow fairly closely the line of the London Midland Region railway on its east side for some distance, and pass under the Watford By-pass a little to the west of Apex Corner. It would then cut northwards through open country for some distance before turning west to rejoin A41, near its junction with A5 at Brockley Hill.

To get things moving—
get B.R.S.

'For crying out loud — get me B.R.S.'

Some people go on wrestling with their transport problems. Others wisely prefer to let British Road Services deliver door-to-door, door-to-dockside or by road across the sea to Northern Ireland and the Continent. Any load, big or small. Awkward or otherwise. No fuss. *Because* modern techniques are used. *Because* B.R.S. have the right vehicle for the job. *Because* their nationwide teleprinter network ensures that your very latest instructions are carried out. Simply lift up the telephone and . . .

Ring British Road Services

(You will find them in the 'phone book)

COMMERCIAL AVIATION

New Kangaroo Schedules

P.A.A BOEING 707-321s

THIS week Qantas Empire Airways and the British Overseas Airways Corporation announced their plans for introducing jet air liners on the Kangaroo route between London and Australia, which they operate in partnership. Boeing 707-138 air liners of Qantas will start flying to London on October 15. B.O.A.C. will put its de Havilland Comet 4s on the London—Sydney service on November 1 and in the reverse direction three days later. The joint fleets will provide eight jet services a week between Britain and Australia and will reduce the total journey time to as little as 33 hr. A ninth service will be operated by a Comet between London and Singapore and a Super-Constellation between Singapore and Sydney. The new aircraft will replace the Qantas Lockheed Super Constellations and B.O.A.C. Bristol Britannias. Meanwhile Qantas is introducing the Boeings in its route between London and Australia via the United States on September 7.

B.O.A.C. to Serve Israel Again

The British Overseas Airways Corporation is to resume operating between Britain and Israel when, on November 1, it commences a twice-weekly service between London and Tel Aviv via Geneva, using Bristol Britannias.

Type Certificate for DC8

The type certificate for the Douglas DC8 Jetliner was presented personally to Mr. Donald W. Douglas by Mr. E. R. Quesada, administrator of the United States Federal Aeronautics Authority, on August 31. Issue of the F.A.A. certificate was one month ahead of the original target date.

Another I.A.T.A. Associate

South West Airways (Pty), Limited, has been admitted to the International Air Transport Association as an associate member. With its head office at Windhoek, Suidwes Lugdiens operates scheduled domestic services in South West Africa. Its admission brings the total of I.A.T.A. membership to 90 airlines, of which 80 are active and 10 associate members.

New Services Approved

The Minister of Transport and Civil Aviation, after considering the recommendations of the Air Transport Advisory Council, has approved the operation of the following services:

An internal service between Leeds/Bradford—Bristol (Lulsgate Bottom) (optional)—Exeter; B.K.S. Air Transport, Limited, from July 13, 1959, until May 31, 1960.

An internal service between Glasgow and/or Liverpool and/or Manchester—Exeter and/or Newquay; Starways, Limited, from May 1 until October 31 from 1959 to 1965.

Air France Traffic Growth

Air France ended its tenth year as a nationalised company as the third largest international air carrier in the world, and the largest European airline, according to its assistant director-general, M. Robert Montarnal. Only Pan American World Airways and Trans World Airlines, in that order, were bigger than Air France. The company made a profit of 743,000,000 francs (£535,700). There had been a 5 per cent increase in traffic during 1958, a figure above the world average of 4.3 per cent for 1958. Despite a general recession which had considerably slowed the growth of air traffic throughout the world.

P.A.A. Long-Range Boeings to London

On August 28 Pan American World Airways began a twice-weekly service with jet aircraft between London and the west coast of the United States via the so-called Polar route. The aircraft are the Boeing 707-321 which are both larger and longer range than the Boeing 707-121 which P.A.A. uses between London and New York (a picture appears on page 7). Passenger capacity is 139, of whom 28 travel de-luxe and the remainder economy class. Flying time to San Francisco is 13 hr. 15 min. as compared with 24 hr. by piston-engined aircraft. One service a week flies direct to San Francisco and the other calls at Los Angeles.

Vanguard Exceeds 500 m.p.h.

Already the holder of airline route records on two continents, the new Vickers Vanguard has reached a speed of 530 m.p.h. during recent flight trials. The intensive Vanguard flight test programme began on January 20 with the maiden flight of No. 1 production aircraft. No prototype was built. Seven months later three Vanguards are flying daily from the Vickers test base at Wisley, Surrey. Altogether they have made 206 flights totalling 358 hours. The test programme involving nearly 1,500 hours flying, is aimed at the award of a full passenger-carrying certificate of airworthiness before Vanguards are delivered to B.E.A. and T.C.A. next year. The first three Vanguards will be joined later in the year by two more. The Vanguard has now completed the flight resonance phase of flight trials without encountering any problems. The highest speed reached, in a dive, was 530 m.p.h. true air-speed at 18,000 ft. In airline service the normal cruising speed will be 425 m.p.h. increasing by up to 25 m.p.h. at a later date when more powerful Rolls-Royce Tyne engines are fitted. After the Farnborough show the aircraft will visit Central and South Africa for tropical trials.

Meteorologists Meet in Montreal

Meteorologists representing some 40 nations and international organisations began a four-week meeting in Montreal on September 1 to discuss the problems of aviation weather forecasting and the provision of weather information. The meeting is that of the Meteorology Division of the International Civil Aviation Organisation, which is holding simultaneous sessions with the Commission for Aeronautical Meteorology of the World Meteorological Organisation. Because of the altitudes at which jet aircraft fly, there is a need for forecasting service to be provided for altitudes up to 45,000 ft. (14,000 metres); of particular importance are temperature, on which the performance of jet aircraft depends, and such phenomena as jet streams, hail, and turbulence both in cloud and in clear air. Ways of presenting this information for pilots on charts, pictorial diagrams, etc., have to be agreed upon or revised. Current methods of providing pilots with information for flights with piston-engined aircraft at lower levels also need to be brought up-to-date, and the possibility of further standardisation, such as for projections and scales used for weather charts, will be considered. It is becoming more and more necessary to reduce meteorological information for aircraft in flight to its essentials, and to make its supply as automatic as possible and the meeting is expected to recommend procedures therefor.

A BRILLIANT RAILWAY ADMINISTRATOR

The late Sir WILLIAM WOOD, K.B.E.

• • • • • •

We record with deep regret the death of Sir William Wood, a brilliant railway administrator and a past member of the British Transport Commission. William Valentine Wood was born in Belfast on February 14, 1883, and began at the age of 15 in the accountant's office of the Belfast and Northern Counties Railway which as the Northern Counties Committee was acquired by the former Midland Railway Company. In 1917, when the Government took control of the Irish railways, he was appointed secretary, and, later, a member, of the Railway Accountants' Committee set up by the Irish Railway Executive Committee. Here his capacity began to be appreciated in a wider sphere and with the formation in 1919 of the Ministry of Transport, with the late Sir Eric Geddes as its political head, he was transferred to London as director of transport accounting, and in 1921 was appointed accountant to the Ministry. In 1924, however, he resumed railway service as assistant to the accountant-general of the London Midland and Scottish Railway, in which the Midland had been amalgamated in 1923, and three years later became controller of costs and statistics, a position he vacated on January 1, 1930, on being appointed vice-president, finance and service department, L.M.S. As senior vice-president of the L.M.S. he was appointed to the Railway Executive Committee by the Minister of Transport on September 1, 1939. In June, 1941, he succeeded the late Lord Stamp as president of the L.M.S. executive, a position he occupied until his acceptance of membership of the newly-formed British Transport Commission in the autumn of 1947. During his long career Sir William rendered invaluable service to the railway undertakings by appearing on numerous occasions on their behalf before Parliamentary committees, in wages negotiations and in the witness box at the Railway Rates Tribunal. Evidence on such occasions revealed his wide knowledge of railway finance and administration, on which he was an acknowledged authority. He made many distinguished contributions to the proceedings of the Institute of Transport, which he joined in 1922; he was elected president in 1943-44 after serving for several years on its council. He was chairman of the General Managers' Conference at the Railway Clearing House, in 1933, 1937 and 1945, was created Knight Bachelor in the Coronation Honours of 1937, and received a K.B.E. in the New Year Honours, 1947.

SIR WILLIAM WOOD

A Tribute

WORK FOR RAILWAYS

A COLLEAGUE writes of the late Sir William Wood, who died on August 26:

Sir William Wood retired from membership of the British Transport Commission in 1953 when he was 70, and, inevitably, many now in senior positions in the railway service only know of him by hearsay. He really belonged to another period of railway history. He himself said in 1953 that he felt he should have retired earlier. His associates and colleagues in the vital years of the railways in the first half of this century were men like Stamp, Hurcomb, Wedgwood, Milne, Walker, Reid, Lemon, Granet, Hartley, Newton, Pick, Missenden—all of whom have now left the railway scene. There is a tendency nowadays to write down somewhat the railway record of those years, but anyone who had the opportunity to watch these personalities in action and to observe their achievements knows the facts.

A Great Partnership

At Euston Sir William Wood was the man upon whom Stamp leaned most; for creative ability he was outstanding on British Railways. The two were a formidable combination, and there was a very close understanding between them. The annual reports to the shareholders of the L.M.S. constitute one of the best records of railway developments between the wars; they were a joint product of Stamp and Wood. The greatest blow in Wood's business life was when Stamp was killed by an enemy bomb one April night in 1941. Few who witnessed it will forget the poignant moment the following morning in Wood's office when he answered the telephone to learn the tragic news. However, Wood carried on and took on the task of supreme executive responsibility for the L.M.S., in addition to his wartime duties as a member of the Railway Executive Committee.

Wartime Burden

It was then that the vice-presidents' part of the L.M.S. administration could not function as was intended, because of the Government's wartime arrangements for controlling the railways, and consequently the burden on Wood as president became exceedingly heavy. A chapter all to itself could be written of the complicated negotiations to settle the financial arrangements between the Government and the railway companies during the war, in which Wood played a prominent part. These discussions started in December, 1937, and were not concluded until October, 1941. Wood was extraordinarily quick in dealing with figures. It would have been hard to find a more modest man, yet all who remember him will recall his flashes of wit—the gift of his Irish heritage. Indeed, he was a great Irishman; and it was in all respects fitting that earlier this week, at his request, his ashes should have joined the sea outside Larne harbour from one of the ships (engines stopped and ensign lowered) that was in service when he was president of the London Midland and Scottish Railway Company.

★

ELECTRIC TRACTION IN FRANCE

Valence-Avignon Extension

IT is announced by French Railways that the electrification of the 78-mile Valence—Avignon section of the Paris—Marseille line will be completed in time for all main-line expresses using this line to be electrically hauled between Paris and Avignon (a distance of 461 miles) when winter timetables are introduced on October 4 next. Electric traction over this section will make possible a considerable degree of acceleration on overall timings of main-line expresses between Paris and Marseille or Vintimille, for instance:

The Mistral, Paris and Nice, 15 minutes.
Train 53, Paris and Marseille, 16 minutes.
Train 51, Paris and Vintimille, 17 minutes.
Train 61, Paris and Vintimille, 21 minutes.
Train 59, Paris and Marseille, 35 minutes.
The Paris—Côte d'Azur Rapide, Paris and Vintimille, 41 minutes.

The acceleration of the *Mistral* by 15 minutes means that this famous express will then cover the 78 miles between Valence and Avignon at an average of 78 m.p.h. instead of 62½ m.p.h. as now, the 536 miles between Paris and Marseille in approximateiy 7½ hr. at an average of 71 m.p.h. and the 676 miles between Paris and Nice in approximately 10½ hr. at an average of 64½ m.p.h.

Among the consequent re-timings of expresses announced for October 4 are the following:

Train 19 (*The Paris—Côte d'Azur Rapide*), departing Paris (Gare de Lyon) 20.00 instead of 20.10.
Train 3 (*The Blue Train*), departing Paris (Gare de Lyon) 20.10 instead of 20.00.
Train 61 (Paris—Vintimille), departing Paris (Gare de Lyon) 21.22 instead of 22.30.

This electrification has been carried out on the 1,500-volt d.c. system to accord with the Paris—Lyon and Nimes—Cette lines which it will eventually join.

★

THE SHORT BRITANNIC

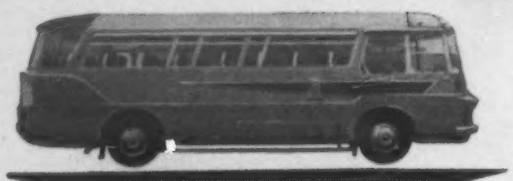
(*Continued from page 7*)

standard pallet designed by Shorts measures 11 ft. by 7 ft. 6 in. These dimensions ensure easy loading into any aircraft with an internal freight space of at least 11 ft. wide. The pallet can also be transported by road to and from the terminal, the 7 ft. 6 in. dimension spanning the lorry. The floor of the Britannic could be designed to take the pallets on its roller way and quick-acting clamps secure them in position.

Ideally, the pallets are delivered to the consignor, loaded and taken by road or rail to the freight terminal receiving bays. The height of the bays matches that of standard vehicles and pallets can thus be easily transferred to the roller conveyer. Turntables are used to transfer the pallets from one bay to another and to provide the hinges of extensions leading to the aircraft. The aircraft is manoeuvred into position, tail facing the terminal, and an extension conveyer is positioned against the aircraft loading ramp. The pallets are moved along the conveyer into the aircraft and secured by the flick of a lever. At destination, the sequence of operations is reversed and the pallets are marshalled into bays to await collection by consignees. At intermediate stops, pallets can be shunted around like wagons in a goods yard to adjust overall loads to suit the aircraft and to allow local loading and unloading.

Mulliners 'new style' luxury coach

Fine bodywork welded by Saturn-Hivolt



Surge Injector Welding Units

Notable always for the highest standard of bodywork, Mulliners recently announced their latest achievement—the "New Style" luxury coach. In this, as in many previous models, Saturn-Hivolt Surge Injector Welding equipment and Saturn Argon are used for the many important welding operations. Saturn cutting and welding equipment has for many years played a big part in industry. The new Saturn-Hivolt Surge Injector Argon Arc Welding machines offer the finest welding of aluminium and its alloys, and stainless steel. Let us show you the complete range supplied and maintained from our many branches throughout the country. We also offer daily deliveries of a wide range of industrial gases.

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LONDON is large and complex. London Transport tries to make it easy and simple. Some or all of the following publications will help:—

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HOW TO GET THERE
A pocket index to over 400 places of interest with full details of opening times, admission prices and travel instructions. Price **6d.**

COUNTRY WALKS
Twenty rambles carefully described with photographs, ordnance survey maps, notes on places of interest and travel instructions. Price **3/6**

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London Transport issues maps of all its services and many leaflets dealing with historic houses, art galleries, museums, and such public spectacles as the Changing of the Guard.

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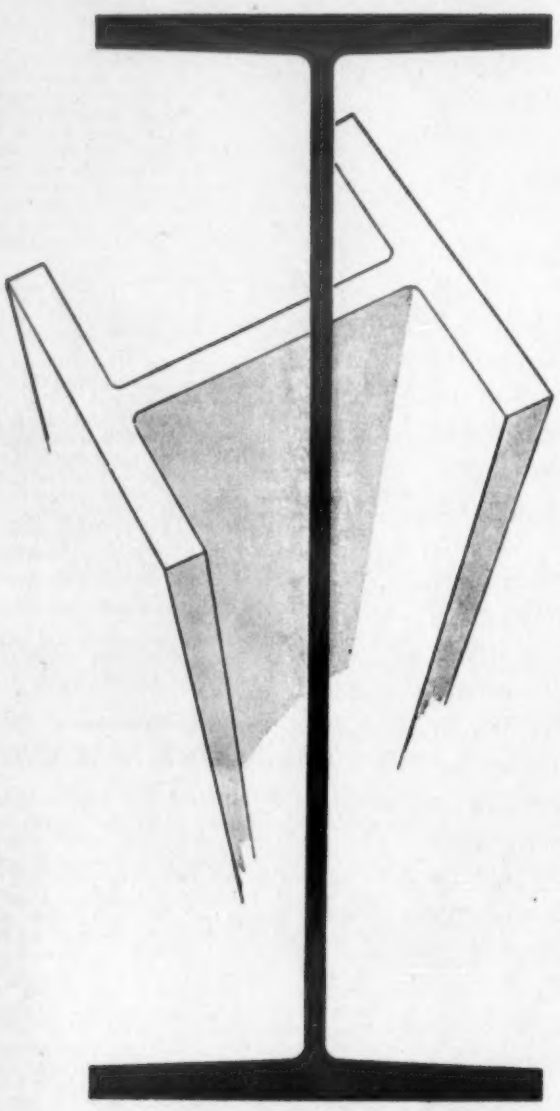
**The Publicity Officer, London Transport,
280 Marylebone Road, London, N.W.1.**

Travel enquiries—Telephone ABBey 1234



BUILDING FASTER

Our new Universal Beam Mill is rolling a new range of sections which are already simplifying steelwork and will lead to substantial economies.

REDUCING PLATE WORK
By providing steel sections 'tailor-made' in different weights to suit structural requirements, much of the riveted-on plate work of columns and beams will be abolished.

MAIN SPANS OF BRIDGES
Deeper and stronger beams will carry loads which previously required built-up girders, and many of the beams can be used straight from the mill for the main spans of bridges.

This simplification will lead to faster fabrication of steelwork, whether for bridges or buildings.

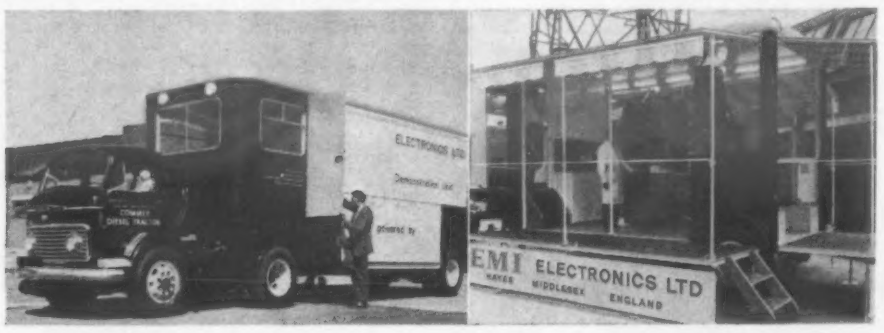
In addition the British Standard beams, channels and angles are still available.

DORMAN LONG

SHOWING EUROPE HOW

Demonstration Unit Begins Tour

FRUITFUL collaboration between British companies has resulted in a most ambitious attempt to show European countries the advances made in Britain with electronic machine-tool control systems and other automation aids. It is being undertaken by E.M.I. Electronics, Limited, Hayes, Middlesex, with a new mobile demonstration unit, which left for the Continent on September 3. Paris, venue of the Machine Tool Exhibition opening on September 12, is the first stopping place, for the duration of the exhibition, after which the unit will visit centres in Belgium, Holland, Germany, Switzerland and Italy, where leading industrialists will be invited to film shows and demonstrations of both the electronic equipment and the vehicle.



The Commer-Hands articulator before its departure for Europe and, right, the Saunders body opened up for demonstration of electronically controlled milling machine and other E.M.I. industrial electronics

Special Vehicle Equipment

The Rootes Group is collaborating with E.M.I. in the organisation of the tour and has provided a Commer articulated tractor. Rootes and E.M.I. European agents are helping in co-ordination of the programme. The tractor is powered by the Rootes opposed-piston two-stroke 105-b.h.p. diesel engine, which drives through a five-speed gearbox and two-speed axle. The vehicle is equipped with air-pressure-hydraulic brakes and power steering, while the fuel-injection pump embodies a C.A.V. hydraulic all-speed governor to maintain constant engine speed while power is being drawn for demonstration equipment from a main-engine-driven alternator mounted on the tractor chassis frame sidemember. The demonstration unit comprises a Hands 25-ft. drop-frame semi-trailer fitted with bodywork by Cecil Saunders, Limited.

The trailer has been fitted out as a workshop, with a 3½-ton Kearney and Trecker milling machine of an entirely new type as the centrepiece. There is also a well-appointed programming office for the preparation of punched tape to control automatically the machining of any type of workpiece from a simple two-dimensional template to a complicated three-dimensional die. The office also houses the viewing screen of an E.M.I. closed-circuit television, the camera of which is set to provide a picture of the workpiece on the milling machine. The milling machine itself is capable of carrying out the most complex operations to close tolerances, controlled entirely by punched tape and the E.M.I. equipment.

British machine-tool control systems are designed to save time and money and to dispense with highly skilled operators on the shop floor. The E.M.I. system enables profiling and die sinking to be carried out directly from blueprint to finished part by punched tape without the use of a computer and can now be fitted to machine tools produced by the world's leading manufacturers. The fact that the American Cincinatti company is among the large manufacturers who have selected the E.M.I. system is a high recommendation. The system can provide one-, two- or three-dimensional control for any type of machine, operated either hydraulically or manually, all with simple programming, and the equipment now marketed covers a range from an inexpensive 10 in. by 10 in. positioning system that costs as little as £1,600 complete with drilling machine up to controls for milling machines and other complete continuous contouring systems.

Giant Aircraft Fueller

ESSO 12,000-GAL. FODEN AT LONDON AIRPORT

INCREASING fuel capacity of modern passenger aircraft, particularly of the large turbojet machines, has led to the introduction by Esso Petroleum Co., Limited, of a new 12,000 imp. gal. mobile refuelling unit at London Airport. An articulated vehicle hauled by a Foden three-axle tractor, the operational part of the machine has been built by the Steel Barrel Co., Limited, and designed in collaboration with Esso. The semi-trailer tank is mounted on Carrimore two-axle running gear and a Davis Magnet coupling turntable incorporates a design feature developed for this particular vehicle and patented by Esso. The type name Python has been adopted for the new unit, which is said to be the largest refueller in the world and more than twice the size of any other at London Airport. Additional machines of similar type are on order.

B.E.A. Viscount 806 gives scale to Esso Petroleum Company's new 12,000 imp. gal. fueller at London Airport. Hauled by a Foden 250-b.h.p. Rolls-Royce-engined tractor and built by the Steel Barrel Company, the unit can deliver fuel at the rate of 1,000 g.p.m.

Rolls-Royce—Power

The Foden tractor is powered by a Rolls-Royce 250-b.h.p. C6M diesel engine, which also provides power for driving a master hydraulic pump of an all-hydraulic cargo-pumping system. A special cab and body designed to blend with the semi-trailer accommodates a control compartment in which a control panel and all meters and gauges are grouped. Fuel is delivered through two hoses by two centrifugal pumps driven by separate high-speed hydraulic motors at a total rate of 1,000 g.p.m. Aircraft can be defuelled at a total rate of 150 g.p.m. All operations, including hose reeling, are powered by hydraulics to avoid the complication of mechanical drives, the installation having been designed and manufactured by Andrew Fraser. The Python can refuel a Viscount in under two minutes, a Comet in less than eight and a Boeing 707 in 12 min.

The vehicle has an overall length of 55 ft., width of 8 ft. and unladen height of 13 ft. Unladen weight is 25 tons and laden weight is about 75 tons. The total capacity of the mild-steel tank is 12,000 imp. gal. plus 4 per cent ullage. The tank is divided into three compartments which are interconnected in such a manner that they may be used as one compartment. Steps are provided and division plates to provide easy entrance to compartments. The tank is internally treated with Tanclene, a Pinchin and Johnson product, to eliminate contamination by scaling. All pipework has been hot tin dipped for the same reason.

General Equipment

Avery-Hardoll bottom-loading equipment is fitted and the refueller can be bottom loaded or self-loaded by the use of the cargo pumps as required. Level indicator gauges are provided. Other notable proprietary features include Zwicky pressure control equipment; valves, swing joints and so on by Emco Brass Manufacturing Company; and filter separators by Purolator, Limited.

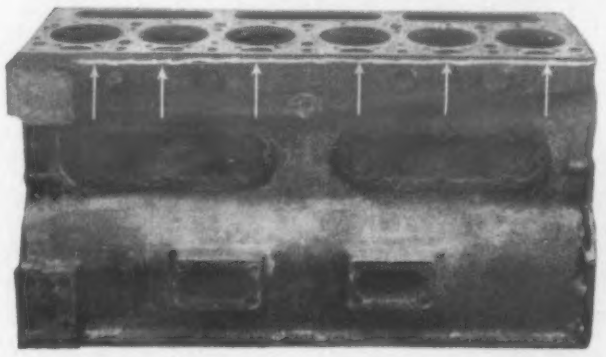
A system for automatic fire protection is incorporated which comes into action immediately in case of fire. This apparatus is fitted in the control compartment and piped to fixed jets direct to the hose reels, pumping gear, water sight glasses and so on. In addition, hand-operated extinguishers with controlled discharge are carried on each side of the refueller.

New agents appointed for Leyland and Albion commercial vehicles and spare parts are Motores S.A., Apartado 4352, Estafeta Justo Arosemena, Panama R.P., in the Republic of Panama and the Engineering Co., Limited, P.O. Box 208, Barlaman Avenue, Khartoum, in the Republic of the Sudan.

Nearly half the 53 diesel vehicles exhibited at the Institute of Public Cleansing Conference at Brighton recently were fitted with Perkins diesel engines. There are 824 municipal authorities operating 3,614 Perkins engines in the country. These include 27 of 28 London boroughs and the other is awaiting delivery of vehicles with Perkins engines.

BARIMAR welds ALL DIESEL Engine Parts

BARIMAR Ltd. have for many years devoted a special department to the scientific welding of all parts of large and small Diesel engines. Many of these jobs have been sent to Barimar from overseas.



Frost cracked the water jacket of this Diesel engine cylinder block from end to end. Barimar repaired it at low cost within a few days.

The picture illustrates one of many Diesel engine cylinder blocks used in motor vehicles, received by Barimar for repair. Barimar scientifically welds these blocks with strength and accuracy and returns them promptly to their owners covered by the usual Barimar Money-back Guarantee.

ENGINEERS IN CHARGE of big Diesel engines used in Power Stations, Government Establishments, Factories, Ships, as well as owners of smaller Diesels belonging to lighting plants, tractors and road vehicles, recognize in Barimar a prompt, speedy, inexpensive, and *guaranteed* welding service, for

Damaged Cylinders
Cylinder Heads
Crankcases
Crankshafts

THE BARIMAR WELDING SERVICE covers *every* type of Diesel engine and *every* kind of damaged part.

STRONGER THAN NEW!

The Barimar night and day service is always available during week-ends and holidays. When transport of damaged machinery is not possible, Barimar expert welders will operate ON THE SPOT.

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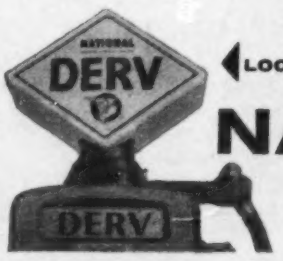

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All the above-mentioned brakes can be used with Lockheed vacuum boosters.
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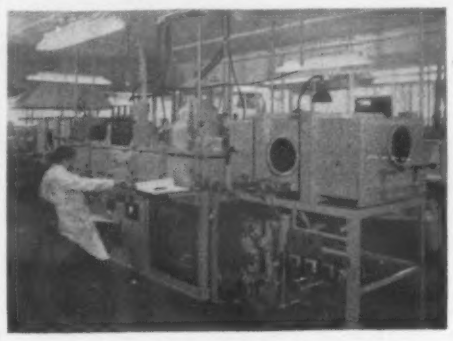
VISIBILITY FROM AIRCRAFT

De-icing Achieved with Gold

ALTHOUGH the use of both laminated and toughened safety glass is primarily associated with the road vehicle industry, it is in providing for the needs of aviation that the manufacturer is faced with the most critical demands. The advent of internally pressurised high altitude and supersonic aircraft requires that windows must withstand pressures of 7 to 8 lb. per sq. in. and temperatures of −70 deg. C., and since the failure of a window can result in the loss of an entire aircraft, the responsibility of the manufacturer is very grave. In these circumstances every stage of production has to be thoroughly checked and tested with absolute care, and as an added precaution the Triplex Safety Glass Co., Limited, uses the very high factor of safety of 5-10 in all design calculations.



In this plant the combined film of gold and metal oxide is deposited on glass electrically in a vacuum chamber

Fixing

To be effective the aircraft window (or panel) must fulfil two principal conditions. It must have sufficient strength to be regarded as an integral part of the fuselage, and it must provide as nearly as possible a flawless visibility irrespective of atmospheric changes. To assure the first of these conditions the glass components are toughened before lamination, and an extra thick vinyl interlayer of ⅛ in. to ¼ in. thickness is used. This interlayer is allowed to project beyond the edge of the glass in order to provide a means of fixing that can easily be filed, drilled or bolted into place without stressing the glass. This plastics edge is often reinforced with light alloy strip, and as a method of mounting aircraft panels this has proved so successful that it is now specified for all aircraft of new design. This type of lamination is known by the name of Triflex, and it has proved to be extremely effective against the danger of bird impact. A ¼-in. thick vinyl interlayer is proof against birds weighing up to 4 lb. at 160 m.p.h. and a ⅜-in. thickness will give protection against birds weighing up to 16 lb.

Where protection against bullets is required a number of glass components is laminated together. Four such components with a total thickness of 1½ in. will resist the impact of .303 calibre ammunition at a range of 100 yd., and a 2½-in. thickness is proof at point-blank range.

De-icing and Demisting

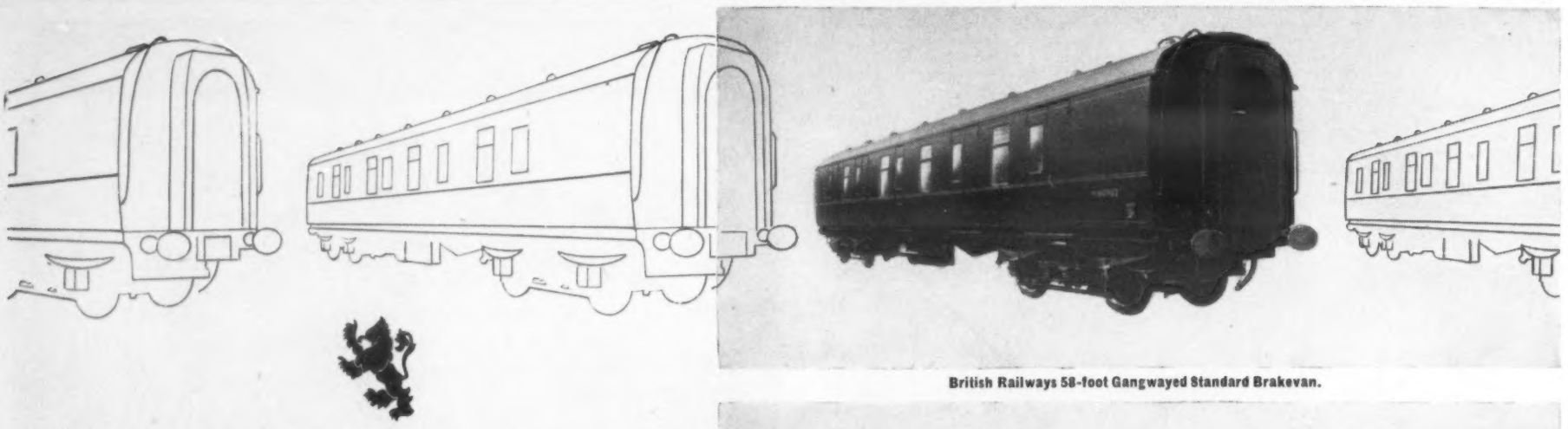
The de-icing and demisting of aircraft windows is a matter of extreme importance. The ordinary double-glazing method which embodies a hollow airspace between the glass components is effective in preventing the external coldness from penetrating within the aircraft, and also prevents the window from misting up on the inside, but unfortunately it has no effect in removing external ice and frost. To achieve this it is necessary to introduce in the laminated glass extremely fine resistance wires, one thousandth of an inch in diameter, embedded in the interlayer. When a current is applied these wires warm up and are capable of melting ice and frost accumulated on the outside of the panel. These fine wires offer no obstruction to vision, but they tend to glitter in bright sunlight, and may distract the pilot's attention.

The most recent development on these lines is known as Triplex Gold Film glass, and it is superior to the wiring method in that it eliminates glitter in sunlight and permits a more effective distribution of heat throughout the panel. It consists of a deposit of gold two ten millionths of an inch in thickness sandwiched between two similar layers of bismuth for adhesive purposes on the inner surface of a laminated glass, and is capable of carrying power inputs of 600 watts per sq. ft. Glass treated in this manner assumes a pale golden hue and is perfectly transparent to the naked eye. As a method of de-icing it has proved so successful that it is now being universally adopted on all the latest types of aircraft manufactured in this country.

A further application for its use has been found by British Railways which has already fitted it in the driving compartment of 60 express diesel locomotives, and has placed a further order for 500 units. In this instance the windows will be provided with conventional windscreen wipers to remove dirt and smuts that would otherwise adhere.

Small and Parkes, Limited, has opened a new brake relining service depot at 36 Walter Road, Swansea. The telephone number is Swansea 56138.

At the Packaging Exhibition (September 8-18) the Venesta Plywood Division will be offering £5 to anyone who can open and re-close a Venesta 201 plywood export case with the tools provided, in such a way that the fact it has been opened may not be detected. Also on display will be two cases that reach the stand after a round trip to Singapore via B.O.A.C. One will be a Venesta plywood case, the other of softwood. The cost-saving in freight charges, etc., by using the plywood case with its lighter weight and smaller exterior dimensions, will be clearly shown along with other virtues.

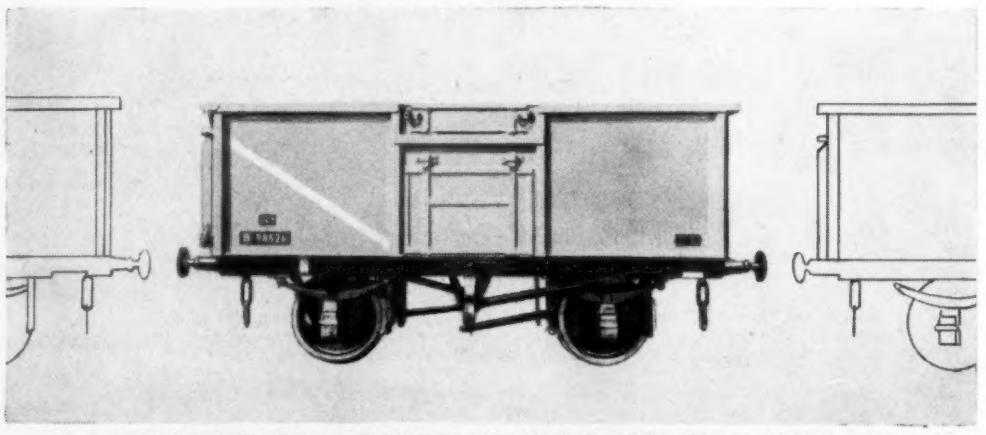


British Railways 58-foot Gangwayed Standard Brakevan.

A wagon every 12½ minutes

At Pressed Steel's Paisley factory the production of railway wagons has been as high as the unprecedented figure of one every 12½ minutes. All in all, Pressed Steel have produced one hundred thousand railway wagons in the last ten years. Wagons of all types, for all gauges, at home and abroad. You see some of this rolling stock opposite.

The figures prove that Pressed Steel have tremendous productivity—and a rich store of engineering experience. But they tell only part of the story. For they do not show the progressive approach of our design staff, the quality of engineering that goes into each job, and our record for prompt delivery. Nor do they show how constant, intensive research has made Pressed Steel ready to play an active part in the future development of the world's carriages and wagons.



16-ton all steel Mineral Wagon. 72,000 of these have already been delivered from our Paisley works.

British Railways 57-foot Utility Van.

PRESSED STEEL COMPANY LIMITED

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Manufacturers also of motor car bodies, Prestcold refrigeration equipment and pressings of all kinds.

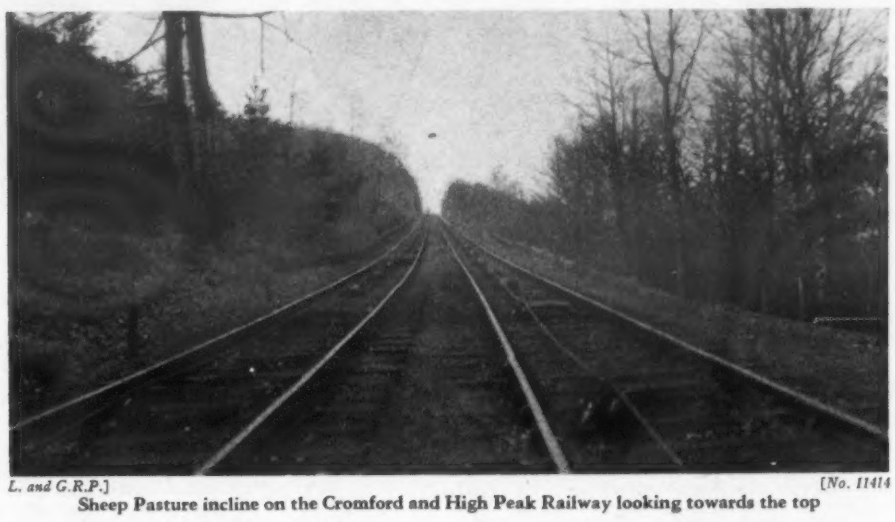
CROMFORD AND HIGH PEAK RAILWAY

An Early Line Survives

By C. R. CLINKER, President, Railway and Canal Historical Society

One of the principal summer visits of the Railway and Canal Historical Society was arranged for the first weekend of July to Buxton, from which centre the Cromford and High Peak Railway was, inter alia, the subject of a visit.

THE first proposals to connect the Cromford Canal (opened in February, 1792) and the Peak Forest Canal (May, 1800) were for waterways passing to the north of the intervening high ground. The prospectus of the last of these schemes, the Grand Commercial (or Scarsdale and High Peak) Canal, appeared in July, 1824. Surveyed by Joseph Haslehurst, it left the Cromford at Buckland Hollow, passed through Chesterfield and Grindleford and joined the Peak Forest at Bugsworth. Including a branch to Sheffield, the estimated cost was £574,130.



L. and G.R.P. [No. 11414

Sheep Pasture incline on the Cromford and High Peak Railway looking towards the top

However, the number of locks required to raise the navigation to summit levels and the difficulty of maintaining water supply in a district consisting almost entirely of limestone, soon caused abandonment of these ideas. No trace can be found of any scheme to make a canal over, or even near, the course of the present Cromford and High Peak Railway, though it has been suggested on many occasions that a railway was built on a site originally surveyed for a canal. The decision to construct a railway was taken in 1823, whilst the last canal schemes were still under consideration. Josias Jessop calculated the cost at £155,080, allowing £20,000 for the stationary engines to work the inclines; actual expenditure was about £180,000. Richard Arkwright, of Cromford Mill, and Lord Anson were among the larger subscribers.

Incorporation

The Cromford and High Peak Railway Company was incorporated by Act of May 2, 1825, with powers to make a railway or tramroad on which wagons were to be "propelled by stationary or locomotive steam engines or other sufficient power," from the Cromford Canal near Cromford to the Peak Forest Canal at Whaley Bridge, 33 miles 70 chains. Capital was fixed at £164,000 and loans at £32,880, secured on a mortgage of the undertaking. A 9-mile branch to Ashbourne, costing £18,000, was proposed in 1827, but abandoned for financial reasons. The line was opened from Cromford Wharf to Hurdlow (17¼ miles) on May 29, 1830, and thence to Whaley Bridge (16¾ miles) on July 6, 1831.

The company was far from prosperous. Jessop's estimate of "probable revenue" was £18,676 a year; in fact, the annual gross income for the first three years averaged only £1,820, considerably less than the working expenses. By the end of August, 1842, the company was in debt to the tune of £47,000. Financial reconstruction was authorised by its Act of August 31, 1842, but with little result. Ten years later the position had worsened, no mortgage interest having been paid since 1839, but it was optimistically expected that linking up with other railways then being built would bring a substantial increase in traffic.

Linking Up With Other Railways

On February 21, 1853, the ¾-mile extension from Cromford Wharf to the Manchester, Buxton, Matlock and Midlands Junction Railway at High Peak Junction was opened, giving the C. and H.P. rail contact with the outside world. The junction with the Stockport, Disley and Whaley Bridge was constructed by that company, the C. and H.P. meeting part of the cost, and opened on August 17, 1857. Soon after the High Peak Junction link was in use, limestone quarries and kilns began to be opened along the line and traffic started to flow in good quantities, but Jessop's estimated £10,000 a year from grain never materialised. On the strength of this improvement in its fortunes, the company carried out another financial shuffle under an Act of June 26, 1855; section 68 of this authorised it to carry passengers.

In 1860, the London and North Western, which had an interest in the Cromford Canal and M.B.M. and M. Jcn. Railway as joint lessees with the Midland since 1852 and also worked the S. D. and W.B. Railway, offered to lease the C. and H.P. The lease came into force on March 25, 1861, at a yearly rental of £4,000. It was terminated on June 30, 1887, and from the following day the C. and H.P. was amalgamated with the L. and N.W.

Deviations

The L. and N.W. Act of August 4, 1890, authorised construction of its Ashbourne—Parsley Hay and Hindlow—Buxton lines, the High Peak being used to connect these portions; Hurdlow incline had already been cut out when the deviation to Hindlow was opened on January 2, 1869. The new line between Hindlow and Buxton was opened for goods traffic and the then redundant High Peak line between Ladmanlow and the bottom of Shallcross incline (Whaley Bridge goods depot) closed on June 27, 1892. A further section of the original line, between Old Harpur and Ladmanlow, was closed on August 2, 1954. Throughout opening for all traffic between Ashbourne and Buxton took place on August 4, 1899. Regular passenger services were withdrawn from November 1, 1954; Hurdlow Station was closed entirely on August 15, 1949.

L. and G.R.P. [No. 19906

A C. and H.P. goods train in the '70s showing the brake van with a passenger compartment; the locomotive was built as a tender engine in 1851

Inclined Planes

Originally, the C. and H.P. was laid out with five inclined planes ascending from the Cromford Canal (278 ft. above sea level) to the summit level (1,266 ft.) at Hurdlow top. This level was maintained to north of Ladmanlow, whence the descent to Whaley Bridge (517 ft.) included four inclines. Details of the original inclines are:—

	Length (yd.)	Vertical rise (ft.)	Gradient (1 in.)
Sheep Pasture (lower) ..	580	204	8½
Sheep Pasture (upper) ..	711	261	8½
Middleton	708	253	8½
Hopton	457	98	14
Hurdlow	850	160	16
Bunsall (Upper Goyt) ..	660	286	7½
Bunsall (Lower Goyt) ..	455	191	7
Shallcross	817	240	10½
Whaley Bridge	180	40	13½

All the inclines, except Whaley Bridge which was usually worked by counterbalance only, were powered by steam winding engines. Each plane had two 20 h.p. machines except Hopton and Hurdlow, where they were 10 h.p. The two Sheep Pasture inclines were combined on October 16, 1857, leaving the short, almost-level stretch, between; the original winding engine was replaced by the present two-cylinder horizontal one in 1883. Middleton incline, originally single line, was doubled on April 2, 1894. Here, the condensing beam engine built by the Butterley Company in 1825 is still in use, though its restricted capacity is

(*Continued on page* 16)

TYER & CO. LTD. ESTABLISHED 1851

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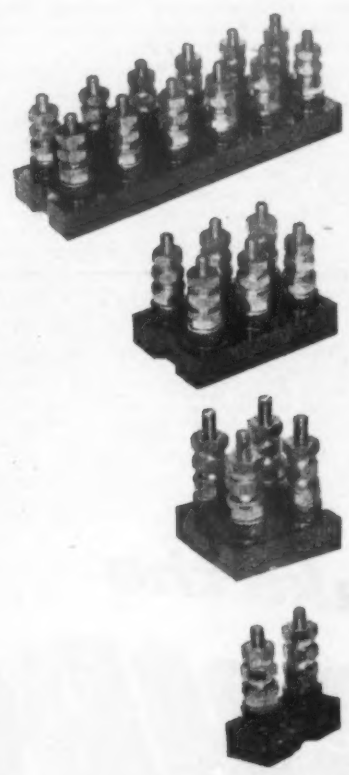
PLASTIC MOULDED INTERLOCKING UNITS

and connecting links



★ *Constant terminal centres*

★ *Self-aligning*

★ *Multi-purpose*

★ *Easy-to-fit*

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O.B.A. brass posts, nickel plated with square-headed stems fitting into similar shaped recesses of base and sealed by hard setting compound ensuring non-turning and non-shorting.

Terminal centres 1" constant end-to-end or side-by-side.

BASE MOULDING

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CONNECTING LINKS

1" centres type of slotted design with special, metallic and insulated portions providing a ready means for disconnection of circuit without removing the link. Substantial in construction, economical in cost.

Also
TYER'S O.B.A. INSULATED SPANNER
economical in size and cost

another **TYER** *product*

Designed and built by specialists with the first name in signalling, at their Merrow Siding Works, Guildford, Surrey. "Standardisation of parts—interchangeability—unit construction" are part of the Company's design policy.

TYER & CO. LTD

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OFFICIAL NOTICE

YORKSHIRE TRACTION COMPANY, LIMITED

VACANCY FOR CHIEF ENGINEER

THE Yorkshire Traction Company, Limited, invite applications for the position of Chief Engineer, consequent upon the retirement of Mr. J. N. Barry at the end of November of this year.

The company, with headquarters at Barnsley, has a fleet of around 370 buses and coaches operating stage carriage and express services, excursions and private hire.

Applications are sought from engineers who have had administrative and technical experience in the maintenance of a fleet of public service vehicles and in the control of staff.

The commencing salary will depend upon the qualifications and experience of the successful applicant.

Applications, which will be treated in strict confidence, should be sent under "PRIVATE" cover to the General Manager, the Yorkshire Traction Company, Limited, Upper Sheffield Road, Barnsley, Yorks, so as to reach him not later than Monday, September 28, 1959, and should give full particulars of the applicant's career, with a front summary sheet showing:

1. Name and address.
2. Age.
3. Whether single or married and, in the latter case, the number and ages of any children.
4. Education.
5. Training.
6. Professional or technical qualifications.
7. Brief statement of present and previous appointments arranged chronologically.
8. Present salary.

[Other Official Notices appear on page 18]

CLASSIFIED ADVERTISEMENT

EDUCATIONAL

THE City of London College will hold evening classes beginning on September 28 to prepare students for the graduateship and associateship examinations of the Institute of Transport. Courses are also provided in shipping and forwarding, for shipping executives, and in Dutch, French, German, Italian, Portuguese, Russian and Spanish, and lunch-hour classes in French, German, Italian and Spanish. Enrolment may be made at the College, Moorgate, E.C.2, on September 21 (last session's students only) and 22, 5-7.30 p.m., and 23, 5-7 p.m.

Further details of the courses are available from the Secretary of the College.

Derbyshire Survival

(*Continued from page 15*)

now an impediment to working and replacement seems inevitable. The cylinders are 25 by 60 in., fed by steam at 5 lb. per sq. in. from a Lancashire boiler fired with surplus wood from Derby Works.

Working Methods

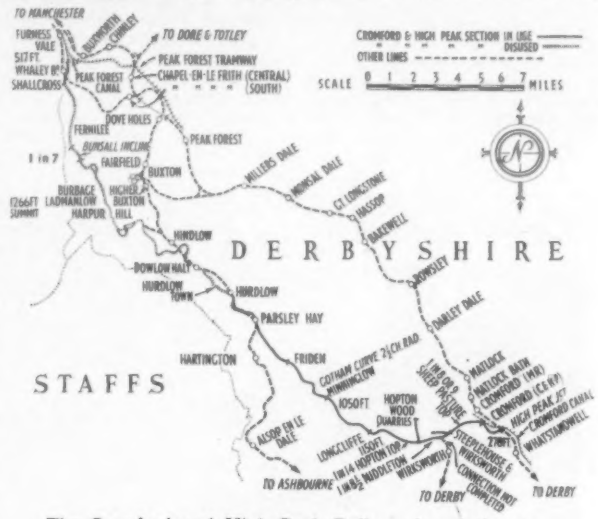
Hopton incline was converted from stationary engine to locomotive (adhesion) working on April 16, 1877, by easing the approach gradients, though the stretch of 1 in 14 remains. Hurdlow incline was abandoned on January 2, 1869, with the opening of the deviation as already mentioned; the two steepest planes, at Bunsall, were amalgamated on June 8, 1857. Chains were replaced by hemp ropes in 1855-57, except at Hopton and Whaley Bridge where they continued in use until abandonment in 1877 and 1952 respectively. Hemp ropes were superseded by wire ropes from 1861 onwards.

Trials with locomotives started on December 13, 1834, between Sheep Pasture top and Middleton bottom, using an engine built at Cromford by John Leonard, the company's engineer and manager, with parts obtained from Derby foundries and elsewhere. On June 24, 1835, the proprietors, on the annual visit of inspection before the general meeting, were hauled by a locomotive from Middleton top to Ladmanlow and reached Buxton "highly pleased with their journey." From January 20, 1841, nearly all traffic on the line was handled by locomotives between the inclines. Up to this date, some was worked by the company with its own horses and the remainder by traders paying toll. For some years, possibly as late as 1855, horses and locomotives were used concurrently.

Rail-Road Passenger Bookings

As the company was not authorised to act as carriers, the conveyance of passengers was licensed to Messrs. German Wheatcroft who, in May, 1833, commenced running a passenger carriage from Cromford (actually Middleton top) to Whaley Bridge and back once each weekday, including passage of the inclines. A coach, operated by the same firm, conveyed passengers between Whaley Bridge and Manchester and seats could be booked through in both directions; this was a very early, perhaps even the first, instance of rail-road bookings. Wheatcrofts held a similar licence on the Mansfield and Pinxton Railway.

The service was taken over by the railway in 1855, but from July, 1856, it seems to have worked between Cromford and Ladmanlow only. A special guard's brake van with passenger compartment was attached to a goods train. This was advertised to leave Cromford at 8 a.m. and reach Ladmanlow at noon, returning at 2.30 p.m., due Cromford 5.30 p.m. Coaches conveyed passengers between Ladmanlow and Buxton and the throughout fare was 2s. 6d. Passengers walked up and down the inclines on footpaths made specially for this purpose. Conveyance of passengers ceased altogether during 1877 due to lack of patronage caused by the general improvement in road communications and opening of railways to Buxton itself. The Midland's extension from Rowsley was opened on June 1, 1863, and the Whaley Bridge—Buxton line 14 days later.



The Cromford and High Peak Railway in relation to neighbouring lines

Interesting Features

Apart from the inclines, the C. and H.P. line possesses other interesting features. The 5¼-mile section between Longcliffe and Friden includes 21 curves of radius 5 ch. or less; three are of 3 ch. radius whilst Gotham is only 2½ ch. These normally preclude the passage of any but four-wheel vehicles. There were three tunnels, Hopton (105 yd.), Newhaven (51 yd.) and Burbage (580 yd.), the latter on the Ladmanlow—Shallcross section closed in 1892. At Newhaven, the south face bears the company's name surrounding a crude wagon; the north face shows the company's crest with the names of the engineer (Jos. Jessop) and clerk (Wm. Brittlebank, of Wirksworth). Jessop died during construction of the line; it was completed by Thomas Woodhouse. After descending Bunsall incline, the site of the line runs down the Goyt Valley alongside Stockport Corporation's Fernilee Reservoir opened on June 10, 1937.

The severity of the gradients and exposed position nearly 1,300 ft. above sea level have inevitably caused various incidents. Breakaways, especially on Middleton incline, were fairly common in early days, but no really serious accident occurred until March 1, 1888, when a brake van and wagon ran away on Sheep Pasture incline, jumped both the canal and Midland main line and finished in a field beyond. This resulted in catchpoints being laid in, leading to a pit. Minor blockages by snow, particularly in the cuttings, have long been a source of trouble. The tremendous storm which swept the Peak plateau on the night of January 13, 1843, filled the cuttings for over 20 miles, some to a depth of 24 ft. The line was re-opened on January 19, after 335 men had been employed on clearance.

Traffic now consists principally of stone from the several quarries, most of that originating on the eastern section passing out via High Peak Junction. From the western end of the line, outlet is via Buxton. Whenever possible, working on the inclines is "balanced," about 100 water tanks a month being brought up from Cromford to supply the stationary engines, locomotives and railway houses as far as Parsley Hay. In this primitive, but still efficient, way British Railways overcome the old problem of water shortage on the limestone plateau which caused abandonment of the canal schemes 150 years ago.

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There is no other tyre made that can give you a greater return in mileage and performance

LATEST TREAD COMPOUND
You take the 'HIGHROAD' and get more tread rubber—compounded by advanced high-quality techniques.

UNBROKEN RIBS
You take the 'HIGHROAD' and get even—and therefore economical—wear across the whole width of the tread. Recessing gives cool running in the shoulder region.

ANTI-SKID NOTCHES
You take the 'HIGHROAD' and experience new safety. Multi-directional notches in all tread ribs give powerful resistance to skidding at all loads on all road surfaces.

DOUBLE REINFORCED BUTTRESSES
You take the 'HIGHROAD' and get great strength throughout the shoulder region with protection from tread chipping caused by kerbing or backing on to ramps, ensuring maximum tread life.

ANTI-STONE-TRAPPING GROOVES
You take the 'HIGHROAD' and see how its narrow grooves of special design will not pick-up or carry destructive stones. The groove bases are also shaped to resist tread cracking.

the thrifty-est high quality tyre ever produced-even by AVON

SELF-SUPPORTING SHELTER

Airhouse by Gourock Ropeworks

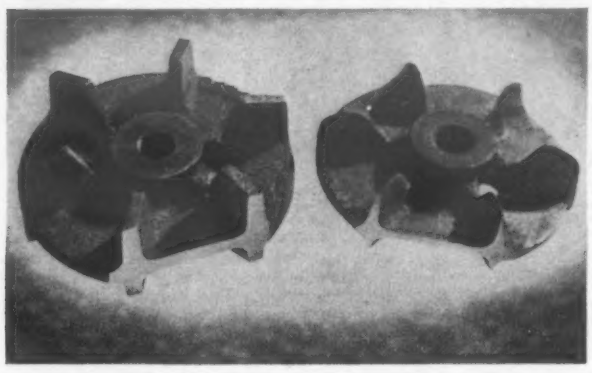
AIRHOUSE is the name given to a new type of self-supporting portable lightweight shelter now in production in this country by the Gourock Ropework Co., Limited, Port Glasgow. Essentially the Gourook Airhouse consists of panels of nylon or terylene fabric coated with Geon p.v.c., sections of which are laced together to provide the required finished size and shape. For erection a base ring is pegged down or secured to special fasteners and low-pressure air from one or more electrically driven fans is admitted; this is sufficient fully to extend the envelope in a matter of minutes and to retain it in position against the loss of pressure from doorways and other openings. Standard sections can be joined to make up almost any size and it is claimed that, suitably secured on the base ring, the Airhouse will withstand winds of near hurricane force.

The shelter is also claimed to be completely weatherproof and it can be made to withstand the lowest Arctic temperatures or hottest tropical sun. Among its other advantages are a floorspace unimpeded by structural members; an even level of interior brightness that gives the impression of being bright on a dull day; extreme lightness of weight and ease of erection; and ability to heat or cool the supporting air, which is also continuously circulated. Lightweight fabrics for the Gourook Airhouse have been developed by British Nylon Spinners, Limited, and Imperial Chemical Industries, Limited.

ROAD VEHICLE INDUSTRY

Improved Antifreeze Formulation

COMPLETE protection against both frost and corrosion damage in every type of petrol and diesel engine is claimed for a new Bluecol antifreeze formulation, which is now offered for sale by Smiths Motor Accessory Division with a unique written guarantee. The company guarantees to make good any frost or corrosion damage caused by New Bluecol to a cooling system within eight months of filling with the recommended quantity, provided that during that time the solution has not been weakened by topping up with water alone. New Bluecol is an ethylene-glycol based antifreeze containing two inhibitors of the type that form a protective layer over all the metals found in cooling systems subject to attack by rust and organic acids and one inhibitor of the alkaline type that neutralises acid. It costs from 6s. 3d. a pint loose to £12 17s. 6d. for a 5-gal. drum.



Unretouched picture of two originally identical impellers after 700-hr. test, that on the left in 25 per cent New Bluecol coolant and the other in a 25 per cent DTD 779 antifreeze solution. Impeller edges have been ground to make comparison easier

New G.M.C. Petrol Engines

WHAT is claimed to be the first major advance in commercial vehicle petrol engine design in over 20 years is announced by General Motors Corporation for a new series of V6 and twin V6 (presumably V12) petrol engines intended eventually to replace current in-line six-cylinder and V8 engines in G.M.C. lorries. No details have been released beyond the general statement that they would have a much higher level of performance, much greater life expectancy and reduced upkeep costs. Start of production awaits the completion of a major retooling of the lorry and coach division's engine plant at Pontiac.

A.E.C. Streamlines Northern Service

ITS present service depot at Victoria Road, Eccleshill, Bradford, will be closed on September 30 by A.E.C., Limited. For some time servicing facilities have been duplicated in the area by Oswald Tillotson, Limited, official A.E.C. repairer and parts stockist, of Preston Street, Bradford, and after careful consideration it has been decided to close the existing A.E.C. depot, amalgamating the two facilities at Tillotson's spacious premises. Steps have been taken to ensure that no deterioration in the 24-hour service will be caused by the move. A comprehensive stock of spare parts, suitable for all A.E.C. models, together with a selection of factory reconditioned exchange engines, gearboxes and differentials will be available at Oswald Tillotsons. Mr. A. Baker, formerly A.E.C. Bradford depot superintendent, will be joining Oswald Tillotson at Preston Street as assistant service manager.

Tasteful and hard-wearing Replin upholstery in a double-decker of A.A. Motor Services, Ayr, is one of many transport applications illustrated on the British Replin stand at the Scottish Industries Exhibition

Lightweight Highway Tyre

TO provide a tyre to match the improved performance of modern light commercial vehicles, Dunlop has introduced its Highway tread pattern on the range of truck-type tyres. The new tread, which is slightly wider and flatter than that of the Highway, has the same advantages and also incorporates embedded knife cuts to give the stability necessary to fast-cornering vehicles. The casing of the tyre is protected from glancing blows by sturdy buttresses.

Larger Clutch for Bedford Service Bus

THE Bedford passenger chassis when fitted with the optional 351 cu. in. diesel engine is now available with a 14-in. clutch, which has been introduced to cater for an increasing demand for this chassis for stage-service work. The 216-in. wheelbase Bedford passenger chassis with 351 cu. in. six-cylinder diesel engine is priced at £1,409. The new clutch and its associated components is installed at the factory at an additional cost of £13 5s.

Karrier for Dutch Dental Surgery

A MOBILE dental surgery with comprehensive interior equipment based on a Karrier Bantam chassis and with an all-steel body by Vermeulen, a firm of Harlaam coachbuilders, is now in service with the dental department of the Municipality of Sittard, Holland. The Bantam was selected because the engine incorporates chrome-plated cylinder bores, thus minimising wear due to repeated stops and starts at low engine temperatures. Also, as small-diameter wheels and tyres are fitted, an extremely low floor line is achieved.

Propeller Shaft Lubrication

UNTIL recently the recommended lubricant for Hardy Spicer propeller shafts and universal joints has been oil; specification S.A.E.140 has been recommended for normal use and S.A.E.250 for tropical or particularly arduous conditions. With the marketing of modern types of greases, research carried out by Hardy Spicer, Limited, has resulted in the recommendation that its range of propeller shafts and universal joints should be lubricated with a lithium-base grease. Such grease must have a lithium base, with an eight to 12 per cent soap content, a penetration (worked) of 265-295 and the N.L.G.I. classification 2. Many proprietary greases now on the market meet this specification.

Marley Plastics Van Fleet

MORE than 75 of the Marley Tile Company's fleet of delivery vans now have bodywork moulded entirely in polyester-glass. These vans, some of which have been in constant and heavy use for over two years, have helped considerably in reducing costs and labour in maintenance and repairs. Apart from re-lettering, the maintenance requirements of the self-coloured polyester-glass bodies are negligible, whereas the remaining metal-bodied vans are constantly requiring repainting and general overhaul of the bodywork. After accidents, it has been found that on average a plastics-bodied van can be repaired in a day compared with a week for vans made with traditional materials. The Marley Tile Company builds its own van bodies using British Resin Products' Cellobond polyester resins and glass fibre.

Rubber Cargo Tanks

COLLAPSIBLE rubber tanks have been used successfully by BP Australia, Limited, for the transport of up to 1,200 gallons of motor spirit and other petroleum products on semi-trailer lorries. Following these trials, three 1,000-gal. collapsible tanks will be installed on each of the vehicles of one of the company's distributors. This will enable the distributor to back-load other goods from distant delivery points. Although unbaffled, the tanks are said to permit little surging while the vehicle is in motion. Drivers report that the slight surge resulting from the momentary pause as gears are changed helps the vehicles to climb hills.

Pyrene Markets Endurion Process

THE metal finishing division of the Pyrene Co., Limited, by arrangement with B. B. Chemical Co., Limited (the Bostik people), is now marketing the Endurion process as an addition to its established range of Parkerising rustproofing finishes for the treatment of ferrous metals. The Endurion process is a simple immersion treatment used in conjunction with Parkerising zinc phosphate systems. The coating produced, which is light grey in colour, can be waxed, oiled or painted. Optionally the natural grey Endurion coating can be coloured by dyeing followed by waxing, oiling or lacquering. The process, developed in the United States, is patented both there and in the United Kingdom, and is used widely for increasing the corrosion resistance of a comprehensive range of ferrous components. A descriptive leaflet is available from the Pyrene Company, Great West Road, Brentford, Middlesex.

Higher-Capacity Traction Battery

RIGOROUS field trials of a new Kathanode N range of traction batteries have been successfully completed and the D.P. Battery Co., Limited, is now marketing them for industry generally. These cells are specially designed for heavy-duty applications where the highest possible capacity is required in a limited space; a great increase in ampere-hour capacity over the standard range of cells is claimed, with a much improved capacity-weight ratio.

Small Industrial Tractor

SEMI-INDUSTRIAL versions of the well-known David Brown 2D agricultural tractor developed by David Brown Construction Equipment, Limited, are intended primarily for haulage work in confined spaces. The 2D semi-industrial tractor is sturdy, compact, manoeuvrable and extremely economical. Most of the first production batch of machines have been shipped to South Africa, where they are being marketed by David Brown companies in East London, Salisbury and Benoni. The 2D tractor is powered by a 14-h.p. two-cylinder four-stroke diesel engine, which is rear-mounted and air-cooled and has an average fuel consumption even on heavy work of as little as a quarter-gallon an hour. It has 12-volt electric starting and the gearbox gives four forward speeds and reverse, with a top speed of 10.5 m.p.h. Normal haulage capacity is 5 tons, although it can handle much heavier loads under favourable conditions. A full road version complying with U.K. regulations is under development.

The SCAMMELL HIGHWAYMAN

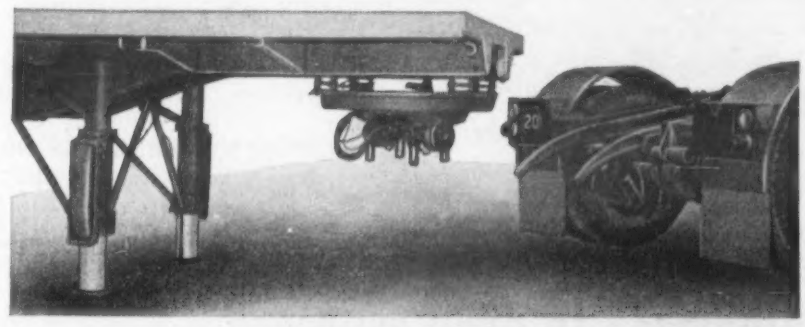
with heavy duty fully automatic telescopic leg coupling gear

BRINGS PURPOSE-BUILT FLEXIBILITY TO TRUNK-ROAD TRANSPORT

Suitability of purpose and reliability are symbolic of the Scammell HIGHWAYMAN range of articulated vehicles. The Heavy Duty Automatic Coupling Gear is an additional feature which commends itself especially to operators who use various types of semi-trailers in turn to meet seasonal demands or as mobile storage containers—a particular asset where storage facilities are limited—also to long distance haulage contractors for simple and speedy changeover of semi-trailers at interchange points on the road. Telescopic support legs on the semi-trailer and the locking hook release are operated by air pressure while instant coupling and uncoupling is effected without the driver leaving his seat.

Particularly featuring driver comfort, the new HIGHWAYMAN cab has a panoramic windscreen and large rear windows for clear all round vision. Provision is made for built-in heating and demisting, screen washers and radio.

The HIGHWAYMAN range includes tankers, hoppers, pressure containers for powdery and granular materials, and machinery transporters each forming a completely design-matched articulated vehicle to meet the particular requirements of the industries concerned.



Scammell HIGHWAYMAN articulated 8-wheeled triple compartment, frameless 3,800 gal. capacity acid oil tanker fitted with Scammell Heavy Duty Automatic Coupling Gear.

Scammell HIGHWAYMAN articulated 8-wheeled frameless powder transporter with air pressure assistance for discharging load to a height of 100 ft. or for a distance of 1,000 ft. horizontally. Fitted with Scammell Heavy Duty Automatic Coupling Gear.

SCAMMELL LORRIES LTD.

Head Office & Works: WATFORD, HERTS. Telephone: Watford 25231 & 25691

"Assure me, dearest Matilda, it was all an evil dream"

"Oh villainy most vile!" With this wild eldritch cry Egbert started from his pillows. Matilda, hurrying to his side, pleaded with him to disclose the cause of such piteous perturbation.

At length, with many a sigh and groan, Egbert gasped, "Driving upon a dark and lonely road, I was of a sudden set upon by footpads and thieves who seized me, hurled me viciously into the roadway and drove off with joyous laughter, mindless of my plight. Even now those dastardly wights are reaping the fruits of my labours, enjoying my engine's surging power as it makes mock of the direst hill, burning away my precious fluid!"* Overcome with anguish, he could say no more. "Courage, my brave Egbert!" Matilda resolutely entreated him. "You are here, in your own bed, Egbert. You have but dreamt this calamity."

Hope battled with despair in Egbert's face. Clutching her hand in his troubled grasp, he breathed, "Assure me yet again, dearest Matilda, assure me it was all an evil dream."

BP DIESEL

★ The finest quality Derv—BP Diesel—is available at Agency sites throughout Britain. With a Shell and BP Derv Agency card your drivers can fill up with BP Diesel on credit or for cash at agency rates. The sign on the right is the sign they should look for.

PETROL AGENCY DERV

Follsain-Wycliffe
FOUNDRIES LTD

SPECIALIST PRODUCTS IN "CY" REGD.
ABRASION-RESISTING ALLOY

LOCO BRAKE BLOCK LIFE extended from 3 months to 2½ years

This is typical of the extra service being obtained from our CY Alloy Brake Blocks—which although remarkably resistant to wear, have no adverse effect on loco tyres. This is one of our most popular applications. After exhaustive tests many of the best known manufacturers of locomotives fit Cy brake blocks as standard.

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LUTTERWORTH · Near RUGBY
Tel.: Lutterworth 10, 60 & 152
Grams: "Wycliffe," Lutterworth

A Subscription to
MODERN TRANSPORT
will keep you in touch with all British and Foreign transport developments

REGULAR CARGO SERVICES
between
LONDON
and

HAMBURG, BREMEN, RHINE PORTS, HARLINGEN, AMSTERDAM, ROTTERDAM, ANTWERP, GHENT, TERNEUZEN, DUNKIRK, CALAIS, BOULOGNE, TREPORT, DIEPPE, HAVRE, CHARENTE, BORDEAUX.

Coastwise to HULL

also between the following ports
LONDON, NEWCASTLE, MIDDLESBROUGH, and SOUTHAMPTON and OPORTO and WEST ITALIAN and SICILIAN PORTS.

BRISTOL CHANNEL PORTS (Bristol, Barry, Cardiff, Newport, Swansea) and HAMBURG, BREMEN.

SOUTHAMPTON and ANTWERP, ROTTERDAM, BREMEN, HAMBURG.

The GENERAL STEAM NAVIGATION CO. LTD.
15, Trinity Square, London, E.C.3
Phone: ROYal 3200

CHANNEL ISLANDS CARGO

New Southern Region Vessels

RECENTLY Brooke Marine, Limited, Lowestoft, delivered the first of two twin-screw diesel cargo vessels to the order of the Southern Region of British Railways. The *Elk*, which is shortly to be followed by the *Moose* now fitting out, is of open shelter deck type with machinery aft and is designed for the carriage of containers, general cargo, perishable foodstuffs and cattle. Although suitable for any of the cargo services operated by the Southern Region, she will normally be used on the Southampton—Weymouth —Channel Isles routes. The new vessels will replace the *Whitstable*, *Haslemere* and *Ringwood* built in 1925-26, the last coal-burning and reciprocating-engined vessels operating on the Southampton—Channel Isles service.

Principal Dimensions

Length O.A.	228 ft.
Length B.P.	210 ft.
Breadth moulded	38 ft. 6 in.
Depth moulded to lower deck	13 ft. 6 in.
Depth moulded to upper deck	23 ft.
Draught loaded	13 ft. 4½ in.
Deadweight	870 tons
Speed	14 knots
Gross tonnage	794·55 tons
Nett tonnage	281·77 ,,
Cargo capacity (Bale)	
No. 1 hold	11,642 cu. ft.
No. 2 hold	18,807 ,, ,,
No. 1 Tween	20,060 ,, ,,
No. 2 Tween	22,265 ,, ,,
Total	72,774 ,, ,,
Oil fuel	33 tons
Fresh water	33 ,,
Water ballast	279 ,,

The *Elk* is constructed and equipped to comply in all respects to Ministry of Transport regulations for a Class VIII ship and under Lloyd's Register of Shipping Survey for Special Class + 100A1 for Channel service.

The m.v. "Elk," first of two new cargo vessels for Southern Region services to the Channel Islands

Accommodation for officers and crew, including galley and mess room is on the poop and upper decks aft. All lining and divisional cabin bulkheads are fire-resistant Marinite with Warerite plastics facings. A Thermotank supply and exhaust ventilation system covers all accommodation and service spaces, toilets, and heating is provided by hot-water radiators supplied by Ideal Boilers and Radiators, Limited. Galley equipment includes coal-fired range, electric water boiler, toaster, boiling table and coffee percolator. Separate pantries are provided for officers and ratings; both are fitted with washing-up facilities, electric hot-press and 6 cu. ft. refrigerator. All equipment, except for the refrigerators by L. Sterne and Co., Limited, was supplied by Thomas and Bishop, Limited. A large provision and cold store is provided, the refrigerating equipment for the latter being by J. and E. Hall. Insulation of the cold store was carried out by Miller Insulation and Engineering, Limited.

Navigational Aids

Navigational aids and equipment fitted in the wheelhouse and chartroom include Decca radar and Navigator, Marconi radio telephony, Pye v.h.f., Subsig echo sounder and Chernikeef electric log. Compasses, clocks and Aldis signalling lamp were supplied by F. Smith and Sons, Southampton. Docking and emergency steering telegraphs are of the Siemens electric type. Chadburns mechanical engine telegraphs are used. Kents clear-view screens are fitted in the wheelhouse front outboard windows. Windows throughout the vessels are of Beckett, Laycock and Watkinson manufacture and round sidelights are by John Roby, Limited. Two Viking Marine 22-ft. glass fibre lifeboats have Samuel Taylor gravity davits and two 20-person Beaufort inflatable liferafts are stowed on the boat deck.

The *Elk* is particularly designed for the carriage of Channel Islands produce and of containers. Special attention has been given to ventilation of the holds and tween deck spaces, and a Thermotank supply and exhaust system has been provided. The hatches are as large as practicable to allow as many containers as possible to be lowered and stowed direct by crane. The design of the cargo spaces also provides for the maximum use in them of fork-lift trucks and other mechanical handling devices. Portable stalls, to Ministry of Agriculture approval, for 85 cattle are provided. A Drysdale sludge ejector system is provided for use when carrying cattle. This comprises four drain tanks each with water-operated ejector, with a discharge rate of 11 tons per hour. MacGregor hatch covers are fitted, those on upper deck being of single pull and on lower deck of individual pull type; the latest approved type of portable hydraulic jacks is provided for initial lifting of upper-deck hatch covers.

Fire Precautions

A Walter Kidde smoke detecting system with the indicator cabinet in the wheelhouse covers holds and tween-deck spaces and the ship has 10-gal. foam fire engines, 2-gal. foam, soda acid and CO_2 fire extinguishers all of Pyrene manufacture. Hatch cover winches, capstans and windlass are all by Stothert and Pitt, Limited, with Mawdsley electric-motor drive. The Thos. Reid and Sons all-electric steering gear also has a Mawdsley motor.

The main machinery comprises two Swiss-made Sulzer type 6TD36 single-acting trunk piston two-stroke marine diesel engines each rated at 900 b.h.p. at 250 r.p.m. The engines are fresh-water cooled, salt-water supply to the heat exchangers being maintained by engine-driven circulating pumps. The heat exchangers are Serck type 32139 with Sercalbro tubes; fresh-water circulation is provided by two electric-driven Hamworthy centrifugal pumps 65-85 t.p.h. capacity. The Bamforth shafting and sterngear has the tailshafts running in whitemetal bearings, oil lubricated by Vickers Vista system; bearings for the intermediate shafts are of the Cooper split roller type. The propellers supplied by J. Stone and Co., Limited, are four-bladed solid type in Novoston alloy.

Electric current at 225 volts d.c. for lighting, power and the electric-driven auxiliaries is provided by three 80-kW Mawdsley generators driven by Ruston type RPHZ four-cylinder V-form diesel engines each rated at 133 h.p. at 1,000 r.p.m. One 15-kW set of similar make is provided for emergency use and harbour duties. A Hamworthy two-stage air compressor of 9.2 cu. ft. per min. capacity can also be clutch-driven from the emergency generator engine.

Attention has been given to providing an efficient alarm system; in addition to "wrong way" alarms incorporated in the bridge-engine room telegraphs, equipment is fitted to protect the main and generator engines in case of cooling water or lubricating oil failure. All alarms give audible and visible alarm at the central control position. A Turbulo Marine oily water separator and an oily bilge pump supplied by the Comet Pump and Engineering Co., Limited, are also fitted. The Thermotank engine room ventilation has two reversible 24-in. fans each capable of supplying 7,750 cu. ft. per min. In view of the crew accommodation above, special attention has been given to insulation of the engine room deck head and this and all lagging for exhausts was supplied by Newall's Insulation, Limited. Other machinery sub-contractors were:

Pneumacators for bunker sounding	Kelvin Hughes, Limited.
Tank content gauges	K.D.G. Instruments, Limited, and Bayham, Limited.
Lifting gear	Felco Hoists, Limited.
Electric bench drill and grinder	Geo. Hatch, Limited.

Except for the fan motors, which were supplied by Woods of Colchester, all are of Mawdsley manufacture: Allen West supplied starters and controllers. The switchboard by Whipp and Bourne, Limited, is of the live front type with single-stage preferential tripping. A 24-volt battery system, by Clifford and Snell, Limited, provides emergency lighting for the engine room.

Daily door-to-door express container services in own ships to and from NORTHERN IRELAND

- All parts of Northern Ireland, Scotland and England served
- Greatly Minimised Risk of Loss by Theft or Damage
- Free Insurance (General Merchandise) — £800 per ton
- Closed Security-Locked Containers
- Insulated Containers for Perishable Foodstuffs — for Hygiene and Cleanliness
- Open Containers and "Flats" for Unpacked Machinery etc.
- All Goods Conveyed with Minimum Packing

Door-to-door inclusive rates

ANGLO-CONTINENTAL CONTAINER SERVICES
(London) Ltd and (Belfast) Ltd

LONDON 79 Dunton Road SE1 *Bermondsey 4881/4* (Head Office) and Elland Road SE15 *New Cross 4885/7* (Traffic Depot) PRESTON The Docks *Preston 86742/4* LARNE (Northern Ireland) Bay Road *Larne 2331/2* BELFAST 35/39 Middlepath Street *Belfast 59261/5* MANCHESTER 2 270/1 Royal Exchange Buildings *Blackfriars 9287/9* GLASGOW 10 Bothwell Street c2 *City 6997/8* (Offices) and 17/21 Tylefield Street SE *Bridgeton 2277/8* (Traffic Depot) ARDROSSAN (Ayrshire) Harbour Street *Saltcoats 1911/2* BRISTOL 61 Park Street *Bristol 25435/6*

OFFICIAL NOTICES

EAST AFRICAN RAILWAYS AND HARBOURS ADMINISTRATION

ASSISTANT TELEGRAPH ENGINEER

TO be responsible to the Signal and Telegraph Engineer for the installation and maintenance of all signalling and telegraph apparatus.

Pensionable appointment. Salary £1,170-£1,755. Free passages. Free furnished quarters. Generous leave.

Candidates, 25-30 years, must be A.M.I.R.S.E. and have thorough experience of telecommunication systems associated with railways and be capable of designing, estimating and controlling the maintenance organisation. Knowledge of mechanical and power signalling systems and radio systems an advantage.

Write Director of Recruitment, Colonial Office, London, S.W.1, giving full names, ages, qualifications and experience, quoting BCD. 173/053.

ULSTER TRANSPORT AUTHORITY

CONTRACT FOR OMNIBUS CHASSIS

THE Authority invites tenders from Chassis manufacturers for:

30 Single-Deck Omnibus Chassis.
38 Double-Deck Omnibus Chassis.
(to U.T.A. Specifications).

Tender Forms, Specifications and other details of the Contract may be had on application to the Stores Superintendent, Duncrue Street, Belfast.

Tenders will not be considered unless submitted on the Authority's Form of Tender.

Applications for Tender Forms and Specifications must be accompanied by a deposit of £5, which will later be returned, provided a bona fide tender is lodged (whether successful or not), or provided the Authority is satisfied there is some good reason for not lodging a tender.

Tenders should be sent to the Secretary, Ulster Transport Authority, 21 Linen Hall Street, Belfast, in a sealed envelope endorsed "Tender for Omnibus Chassis," so as to be delivered not later than 5.0 p.m. on Tuesday, September 15, 1959.

An official receipt must be obtained for each Tender delivered by hand. Tenders sent by post should be registered.

The Authority does not bind itself to accept the lowest or any Tender.

COUNTY BOROUGH OF READING

TRANSPORT DEPARTMENT

THE Corporation invite firm price tenders for the supply of the following:

14 Double-deck, two-axle Trolleybus Chassis, complete with 8-ft. wide sixty-eight seater Bodies.

Makers may quote for chassis and/or bodies separately. Specifications and conditions of contract may be obtained from the Transport Manager and Engineer, Reading Corporation Transport, Mill Lane, Reading.

Tenders in plain sealed envelope, endorsed "Tenders for Trolleybuses" must be received by me not later tnan Monday, September 28, 1959.

G. F. DARLOW,
Town Clerk.

Town Hall,
Reading.

[Another Official Notice appears on page 16]

SOCIAL AND PERSONAL

M.o.T. Appointments

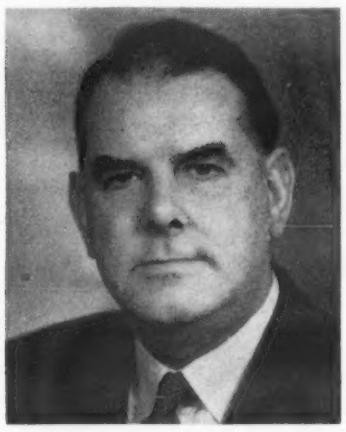
THE Ministry of Transport announced the following changes at Under Secretary level with effect on September 1: Mr. C. P. Scott-Malden will become Principal Establishment and Organisation Officer in succession to Mr. P. J. E. Dalmahoy, C.B., who is undertaking special duties; Mr. T. F. Bird, C.B., will take charge of the rail, inland waterways and road transport groups, which will be combined; Mr. R. R. Goodison will take charge of the aviation safety and general group in place of Mr. C. W. Evans, C.B., C.B.E., who is retiring; Mr. B. P. H. Dickinson will take charge of the shipping policy group in place of Mr. T. F. Bird; Mr. Reep Lintern will take charge of the shipping operations ports and planning group in place of Mr. Dickinson; Mr. L. S. Mills, who is being promoted to Under Secretary, will take charge of the highways group in place of Mr. Reep Lintern. A second Under Secretary will be appointed to this group shortly.

* * *

Mr. Eric I. Boyd, assistant district traffic superintendent (commercial), Chester, has been appointed district traffic superintendent, Barrow-in-Furness, London Midland Region, B.R.

* * *

Mr. O. R. Smart, hitherto principal assistant to general manager, Eastern Region, has been appointed supplies and contracts manager, Eastern Region, B.R., with headquarters at Kings Cross, with the dismantling of the bi-regional (Eastern and North Eastern) stores department (MODERN TRANSPORT, August 15). Mr. Smart entered the service of the North Eastern Railway in 1920. He served at stations, district offices and headquarters until his appointment to a traffic apprenticeship in 1929. He subsequently held appointments in the district goods manager's office, Newcastle, in the office of the chief general manager of the London and North Eastern Railway, Kings Cross, and at York. He was appointed assistant district goods manager, Middlesbrough (1942), and assistant mineral manager, Doncaster, in 1947. In 1949 Mr. Smart was appointed assistant commercial superintendent (passenger-general), Eastern Region, and in 1953 extended the range of his activities to cover all commercial passenger matters in the region on his appointment as assistant commercial superintendent (passenger), which position was later redesignated assistant commercial manager (passenger). He was appointed principal assistant to general manager, Eastern Region, in April, 1956.



Mr. O. R. Smart

* * *

Mr. I. C. Forsyth, works manager, Crewe locomotive works, has been appointed mechanical and electrical engineer (workshops) in the c.m. and e.e. department, Derby, London Midland Region (see also August 22 issue).

* * *

We regret to record the death of Mr. E. H. Short, author, newspaper correspondent and general secretary of the British Railway Stockholders' Union for a decade prior to nationalisation. He was 84.

* * *

Mr. K. M. Whitworth, O.B.E., has been appointed managing director of Kenex Coachwork, Limited. Prior to his new appointment, Mr. Whitworth was deputy transport executive officer with T. Wall and Son (Ice Cream), Limited.

* * *

Hardy Spicer, Limited, has accepted with regret the resignation of Mr. H. P. Oldham from his position of director of manufacturing. Mr. Oldham, a naturalised American citizen, must return to the U.S.A. in order to retain that nationality.

* * *

A common service for all departments in regard to modernisation and electrification work on the London Midland Region is foreshadowed in the establishment of a new planning office under Mr. W. O. Reynolds, M.B.E., M.Inst.T., former assistant operating officer.

* * *

An illustrated lecture competition will be held by the Western Region London Lecture and Debating Society during the 1959-60 session. A maximum of 12 transparencies and a script not exceeding 1,000 words on a transport subject must be submitted.

* * *

A party primarily representative of members and officers of local authorities, and of consulting engineers is to study urban motorway and other highway schemes in Western Germany under the aegis of the British Road Federation. It is to leave London on October 11 and to make visits in and around Frankfurt, Cologne and Hamburg, returning on October 17.

* * *

Mr. Orlando Oldham, son of Mr. John Oldham, O.B.E., chairman of Oldham and Son, Limited, has been appointed assistant managing director of the company. He represents the fourth generation of the Oldham family in the management of the business—which was founded by his great-grandfather, Joseph Oldham, in 1865. Mr. Orlando Oldham first joined the company at bench level in 1947. Mr. J. Dowse is to be appointed production director; he has for 20 years occupied the position of general works manager. Dr. C. D. J. Statham will also be appointed to the board, in the capacity of sales director; since 1958 he has been general sales manager.

B.R.S. Management

FROM October 1, the British Road Services board of management is to be reconstituted in consequence of the appointments of Major-General G. N. Russell, C.B., C.B.E., as a member of the British Transport Commission, and of Mr. T. G. Gibb as general manager of British Road Services. From that date the members of the board will be:

Mr. T. G. Gibb, general manager, B.R.S., to be also chairman of the board of management with special responsibility for major policy on staff and labour questions.

Mr. G. F. Sinclair, C.B.E., member, will become deputy general manager and deputy chairman of the board of management, with responsibility for technical services.

Mr. Harold Elliott, chief traffic manager, to be a member in charge of traffic and to continue in his capacity as chief traffic manager.

Mr. J. B. Garrett continues as a part-time member in an advisory capacity.

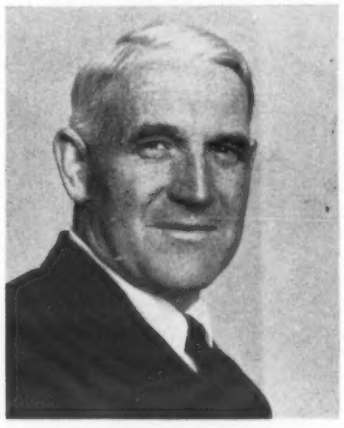
Mr. C. Barrington will relinquish his particular responsibility for traffic on October 1 and his full-time membership of the board on December 31 next, and will be a part-time member of the B.R.S. board as from January 1, 1960. Mr. Barrington will become chairman of the Atlantic Steam Navigation Co., Limited, as from January 1, 1960.

As a result of these changes, the membership of boards of B.R.S. companies will also be revised:

Mr. Barrington is to be chairman of B.R.S. (Pickfords), Limited, and Mr. Elliott will be appointed to the boards of British Road Services, Limited, and B.R.S. (Parcels), Limited; Mr. Garrett will be chairman of B.R.S. (Meat Haulage), Limited, and Mr. E. G. Marsden chairman of Anglo Continental Container Services (London), Limited, and Anglo Continental Container Services (Belfast), Limited, in succession to Mr. D. H. Foulds, who will be appointed to the board of B.R.S. (Pickfords), Limited.

* * *

Mr. H. Bell, appointed supplies and contracts manager, North Eastern Region, B.R., joined the L.N.E.R. as a clerk at Fourstones in 1924. After working at various stations and offices in the Newcastle and Leeds districts, he was appointed a traffic apprentice in 1931 and after completing his training became staff clerk in the district superintendent's office, Newcastle, in 1935. From 1937 he occupied a series of staff and trains positions in the headquarters offices at York over a period of nine years and in 1946 became head of works section in the divisional general manager's office at York. He was appointed assistant to the general manager (works), North Eastern Region, in 1953 and principal assistant to the general manager, North Eastern Region, in June, 1956, the post he now vacates.



Mr. H. Bell

* * *

United Dominions Trust, Limited, announces that Mr. G. Cutts has been appointed manager of the Sheffield branch.

* * *

Mr. J. C. Spark has been appointed works manager, Doncaster, and Mr. P. Gray works manager, Stratford, Eastern Region, B.R.

* * *

British Transport Docks announces the appointment of Mr. T. S. Roberts, docks manager, Middlesbrough and Hartlepool Docks, as chief docks manager, Hull Docks, in succession to Mr. H. L. Hopkins, who will retire on September 30.

* * *

We record with regret the death of Dr. H. J. Nichols, who was formerly member for engineering and reconstruction on the Indian Railway Board. He was 64 and before the above appointment in 1945 had been general manager, Bombay, Baroda and Central India Railway.

* * *

We record with regret the death, at the age of 86, of Mr. J. W. Stewart, a renowned naval architect who specialised in tanker and ore carrier designs. He was active in the firm of Sir Joseph Isherwood and Co., Limited, of London and New York, until his end.

* * *

The Minister of Transport has approved the appointment of Mr. R. E. G. Brown, London secretary of the Traders' Road Transport Association, to the London and Home Counties Traffic Advisory Committee, to represent the interests of C-licence holders. He succeeds Mr. W. A. Winson, who recently relinquished his T.R.T.A. activities.

* * *

Seven railwaymen, comprising engine drivers, clerks, a guard and a goods checker, lunched at Euston with Mr. David Blee, general manager of the London Midland Region, on August 21. They are this year's mayors of Wallasey, St. Helens, Carlisle, Watford, Dukinfield, and Aylesbury, and the Sheriff of Nottingham.

* * *

An evening course of 24 meetings on railway history will be given by Mr. C. R. Clinker, the noted railway historian, on Thursdays, commencing October 1, at the University of Nottingham Adult Education Centre, 14-22 Shakespeare Street, Nottingham. Notes for the guidance of would-be students are available from the director of extra-mural studies at the above address.

* * *

A certificate course in transport subjects is under consideration by the University of London Extension Committee and the British Transport Commission. It is hoped to begin the certificate courses in the session 1959-60. If the scheme is agreed the certificate will extend over three years and examination success is required each year. The certificate will be awarded upon demonstration of a knowledge of the subject, comparable with that expected of students attaining a first degree. The course of study will be designed, in the first two years, to provide a firm basis in applied economics and economic geography with special reference to inland transport. In the third year, students will be expected to examine objectively problems of the transport world.

Mileage at a glance
with AEI RAILWAY MILEAGE RECORDERS

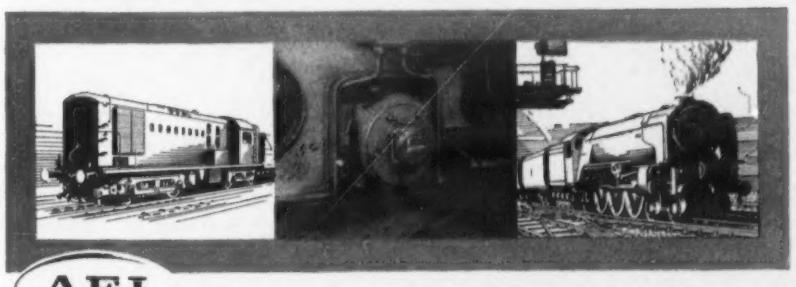
Accurate mileage recording, essential for efficient operation and maintenance of railway rolling stock, is greatly simplified by these new AEI mileage recorders. They are designed for axle-box mounting and are available in two forms. *Form A* is a complete counter unit with drive and resilient mounting for attachment to axle-box cover. It is interchangeable with AEI Type JB tachogenerator for axle-shaft drive. *Form B* is a counter unit with reduction gearing for incorporation with AEI Type RC tachogenerator, driven from the generator shaft.

LEADING FEATURES OF AEI MILEAGE RECORDERS
99,999.9 miles registered in tenths of a mile by reduction gearing from track wheel axle.

FOR TRACK WHEEL DIAMETERS 26.5 — 55 in.

TYRE WEAR ALLOWED FOR. Small errors due to variation in wheel diameter cancel out. A correction factor can be applied for more precise mileage over a short period, but figures are sufficiently accurate for normal record purpose. Maximum error at any time will not exceed approximately 4 per cent.

For more details on AEI Mileage Recorders for railway service please write. Our staff of specialist engineers will be glad to advise you.



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The photograph, left, shows two 1,500 kW equipments. One of the two main transformers in the farther set is withdrawn to show its location.

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IMPORTANT CONTRACTS

British Radar for Venezuela

BRITISH surveillance radar is to be installed at Maiqueta, the international airport at Caracas. Awarded in open international tender after very stiff competition from United States companies, a contract has been placed by the Venezuelan Ministry of Communications for the new surveillance radar, Decca type DASR1, which will be used to control the heavy inter-continental traffic for which Caracas is the principal staging post. This new Decca radar, designed to solve the acute problems of operating jet aircraft in high traffic densities, is also being fitted at other international terminals. It incorporates anti-rain devices and provides solid coverage without gaps to ranges in excess of 100 miles and heights above 40,000 ft. on comparatively small aircraft.

Trent Changes Bus Order

An order for six front-engined Titan bus chassis placed by Trent Motor Traction Company with Leyland Motors has now been changed to one for six rear-engined Leyland Atlantean chassis, bringing Trent orders for Atlanteans to 53.

British Couplings for Australian Ford Plant

Heenan and Froude, Limited, is supplying 25 couplings to the Ford Motor Company (Australia) Proprietary, for use in driving a conveyer system at the new Ford factory at Broadmeadows, near Melbourne. The company also has on hand an order for eight dynamometers for the Citroën Paris factory.

Transformers For Russian Tyre Factory

The switchgear works of Crompton Parkinson (Chelmsford), Limited, is busy constructing 33 switchboards for the large British-equipped tyre factory now being completed at Dneipropetrovsk. Equipment being supplied by Crompton Parkinson ranges from a 27-unit main intake h.v. switchboard to 13-unit l.v. local distribution boards used to control small sections of the tyre factory.

Press Tools for British Railways

Press tools made in Edgar Allen and Company's K9 oil-hardening tool steel are being used for British Railways semaphore lamp tank tops and bottoms. Tops, 6¼ in. in diameter, are blanked, raised and cropped at one stroke from 22 s.w.g. tinplate, 40,000 pairs being pressed between regrinds. Similar high production between regrinds is being obtained with K9 tools used on lamp back frames and coil cheeks for block telegraph instruments.

Bukonte—Jinja Rail Short-cut

A £321,000 contract for earthworks on the Bukonte—Jinja rail cut-off has been awarded by East African Railways and Harbours to Stirling-Astaldi (Uganda) Co., Limited. This involves moving about 2 million cu. yd. of earth and rock over the 46.2-mile project, which will shorten the line between Tororo and Jinja by 45.3 miles. The new line will save about 173,000 train miles and 5.5 million wagon miles per year and will also reduce passenger-train times between Tororo and Jinja by 2 hr.; the introduction of heavier rail will enable maximum speeds to be increased to give a total saving of nearly 3 hr. The line is expected to be open for traffic by mid-1961.

Scottish Region Contracts

The following contracts have been placed by the Scottish Region of British Railways:

John Boyd and Co. (Engineers), Limited, Annan, for two 400-ft. electrically driven wood-slat conveyors for Sighthill new goods station, Glasgow.

The Motherwell Bridge and Engineering Co., Limited, Motherwell, for four 40,000-gal. oil storage tanks at Haymarket motive power depot, Edinburgh.

Lansing Bagnall, Limited, Basingstoke, for two fork-lift trucks for Dundee Tay Bridge goods station.

Murdoch MacKenzie, Limited, Motherwell, for sub-structure and superstructure for bridge widening, Bridge of Allan.

The Siemens and General Electric Railway Signal Co., Limited, Wembley, for automatic warning control, Airdrie to Kelvinhaugh.

Special Buses for Mexborough and Swinton

Mexborough and Swinton Traction Co., Limited, which has a fleet of Leyland Tiger Cub single-deck buses, including some 61-passenger standee types, has ordered another four modified Tiger Cubs for use as standee buses. Modifications include use of the Leyland O375 110 h.p. underfloor diesel engine instead of the standard O350 unit, 4½-ton capacity export-type front axle and 12-ply tyres on the front wheels and stronger rear springs. Automatic chassis lubrication and fluid coupling - Pneumo-Cyclic gearbox transmission are also specified. Special Weymann standee bodies will have power doors interconnected with the change-speed lever.

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TENDERS INVITED

THE following items are extracted from the Board of Trade Special Register Service of Information. Inquiries should be addressed, quoting reference number where given, to the Export Services Branch, Board of Trade, Lacon House, Theobalds Road, London, W.C.1.

September 15—India.—Directorate-General of Supplies and disposals for one 100 to 120-h.p. diesel WHEELED TRACTOR with hydraulic 9 ft. 6 in. ANGLEDOZER and lights for night operation, plus two years' spares. Tenders to the Director-General of Supplies and Disposals, Shahjahan Road, New Delhi. (ESB/20015/59.)

September 17—Irish Republic.—Sligo County Council for unspecified quantities of LIGHT FIRE ENGINES, FIRE-ENGINE EQUIPMENT and additional fire-fighting and ancillary equipment. Tenders, endorsed "Tenders for Fire-fighting Equipment," to An Runai, Comhairle Chonndae, Shligigh, Teach Cuirte, Sligeach. (ESB/20719/59.)

September 19—Indonesia.—International Co-operation Administration for 20 12-ton 2-axle FLAT WAGONS, 10 24-ton 4-axle FLAT WAGONS and 75 30-ton 4-axle SAND-BALLAST WAGONS, all complete with spare parts. Tenders to the Chief Stores and Purchasing Department, Madjalengka, 13 Bandung. (ESB/20298/59/ICA.)

September 29—India.—International Co-operation Administration for an ELECTRIC LOCOMOTIVE, rubber tyre-mounted COAL CUTTERS and a COAL LOADER. Copies of specifications and other documents relating to such tenders can generally be obtained from the India Stores Department, Government Building, Bromyard Avenue, Acton, London, W.3.

Undated—U.S.A.—Louisiana Eastern Railroad Corporation for 30 track-miles of 90 lb. yd. RAIL. Photocopies of relevant drawing A-71 available on loan from Export Services Branch, B.o.T. (ESB/19769/59.)

Agency Inquiry—Iran.—H. Ali Morshadi and Sons, Khiaban Zand, Abadan, has informed the British Consulate at Khorramshahr that it is interested in representing United Kingdom manufacturers of VEHICLES, TRACTORS and SPARE PARTS. (ESB/13556/59.)

SHIPPING AND SHIPBUILDING

Royal Launch for 40,000-ton "Oriana"

FROM Government House, Brisbane, it is announced that the new Orient Line passenger liner *Oriana* will be named and launched by H.R.H. Princess Alexandra at noon on November 3. The ceremony will be at the Barrow-in-Furness shipyard of Vickers-Armstrongs (Shipbuilders), Limited. The *Oriana* is a liner of 40,000 tons gross and will be the biggest passenger ship launched in Britain since the *Queen Elizabeth*, 20 years ago. Her principal dimensions are: length overall, 804 ft.; breadth, moulded, 97 ft.; maximum draft, 31 ft. 6 in.; maximum horsepower, 80,000.

Oriana will have a service speed of 27½ knots, which will reduce the time of passage from London to Sydney by one week as compared with present ships. She will carry about 600 first- and 1,500 tourist-class passengers. The crew will number 900, all accommodated in single- or two-berth cabins. She will be air conditioned throughout.

Closing Dates at Mombasa

A NEW scheme to expedite the loading and dispatching of ships at Kilindini is to be introduced by East African Railways and Harbours this month. The scheme, which has been accepted by all the shipping lines serving the port of Mombasa, involves the introduction of a closing date for acceptance of export cargo. This is in addition to the acceptance date for a cargo which is published daily. Export cargo for a nominated ship will not be accepted by the port for that ship unless it is handed over by noon on the closing date.

Unitised General Cargo Ship

FOR service between Scandinavia and the Mediterranean the Swedish Line has ordered a new vessel of 4,600 tons deadweight with special features to enable her to handle a great variety of cargo on the unitised pattern, using special slings, nettings, flat and box pallets. Hatches will extend across the full breadth of the ship and the main deck hatches will be flush. The engine room will be right aft. In practice cargo lifts will be straight up and down in every part of the hold and there will be no necessity for fork trucks in the holds.

Latest News of "Auris"

THE Shell tanker *Auris* (12,000 tons deadweight) originally a motor ship, and now fitted with gas-turbine machinery, has successfully completed sea trials; she thus becomes the first tanker to be driven entirely by a gas turbine. The *Auris* was built in 1948. In 1951, mainly as a result of the initiative of the late John Lamb, O.B.E., a small experimental gas turbine was fitted which helped the main diesel engines to drive the ship. The success of the first turbine led to the present installation in which a much larger gas turbine is the only means of propulsion.

It has been found that the thermal economy of the present unit in *Auris* is about the same as a comparable steam turbine and at a disadvantage compared with a modern marine diesel engine. Maintenance costs should be somewhat lower, but it is clear that this advantage could never be of sufficient extent to offset the high capital cost of a gas-turbine unit of this particular design. Accordingly, it is not the intention to repeat the installation of this type of machinery in any other ships, but the *Auris* will be run to gain additional experience with this type of machinery together with the transmission system which might well be applied to a conventional steam-turbine power plant.

Dockers' Pension Scheme

DETAILS of a contributory pension scheme for Britain's 73,000 port workers have now been outlined by employers' and unions' representatives following a meeting on August 27. Discussions on detail have yet to take place but it is hoped to introduce the scheme early next year. Agreement was also reached in principle on the introduction of a training scheme for dock workers, compulsory medical examinations for new entrants, and steps to improve the efficiency of the industry.

The outline pension plan envisages the compulsory retirement of men of 70 and over as soon as the scheme is introduced and then a gradual reduction of the retirement age to 65 over a period of years. Contributions, at the rate of 2s. 6d. a week, would be voluntary on the part of present dock workers but compulsory for new entrants. Men who join the scheme at the age of 25 or under would receive a pension of £2 a week on retirement after a minimum of 40 years' service. The older men now in the industry—the exact age limit is yet to be decided—would have 10s. a week and a capital sum of £100, both of which, it is hoped, can be tax free. The employers will contribute about 5s. per week for each employee in the scheme.

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FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or reorganisations.

Coast Lines

In the year 1958 Coast Lines, Limited, earned a net profit of £470,021 (£484,594) and ordinary dividend is 10 per cent (same). Taxation under all heads took £302,721 (£561,142) from trading profit of £885,603 (£1,145,808); depreciation £944,884 (£879,606).

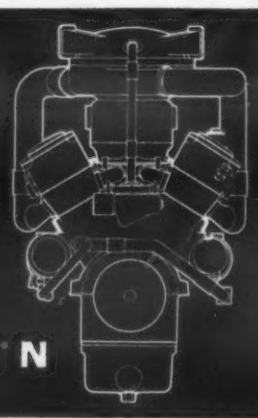
Oldham and Son

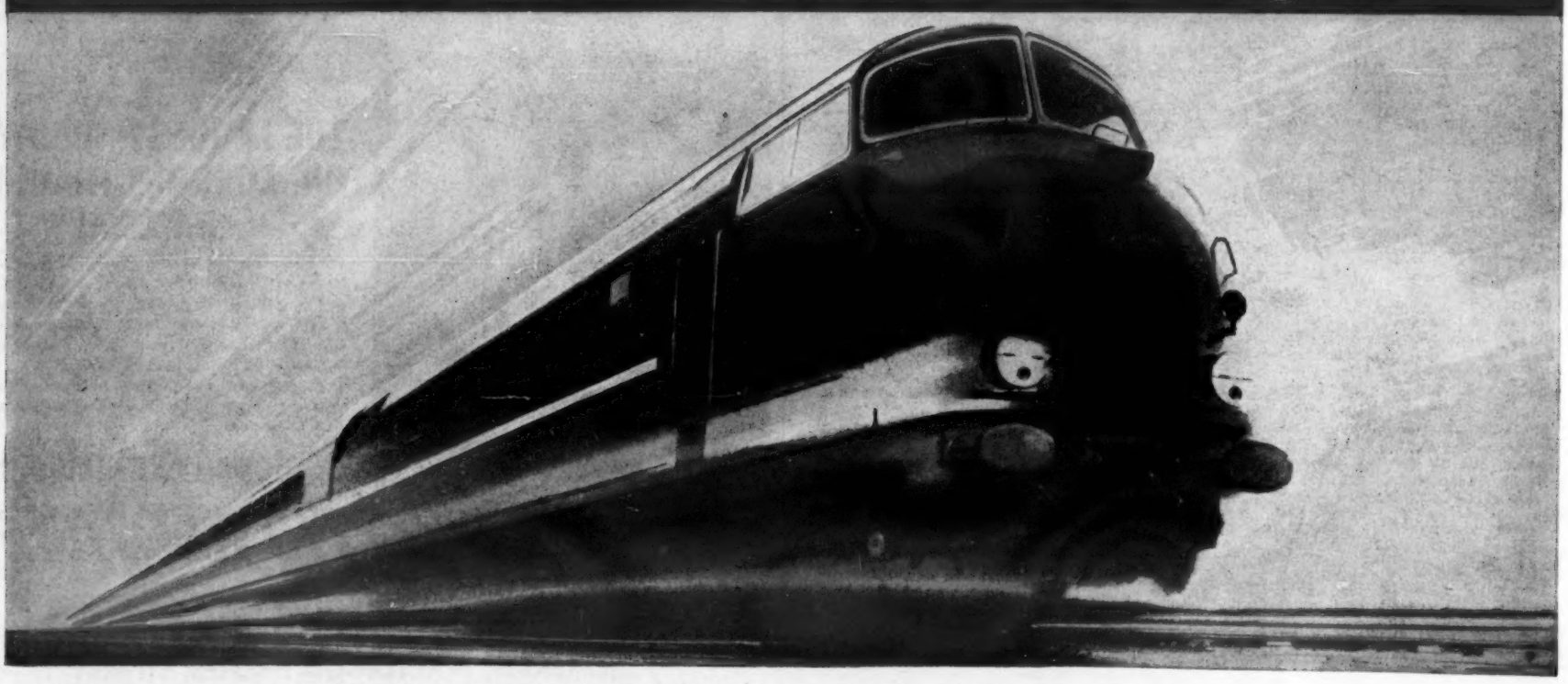
Net profit of Oldham and Son, Limited (parent company) for the year ended March 31, before taxation, was £53,833 (£164,295). Against this, the aggregate net profits of the overseas and other subsidiary companies amounted to £234,177 (£247,297). Final dividend is maintained at 10 per cent. The decline in net profits is due to a drop in demand in the mining and export battery section. (For new board appointments see page 19.)

G. and J. Weir: Lobnitz

G. and J. Weir Holdings, Limited, has acquired Lobnitz and Co., Limited, shipbuilders and engineers, of Renfrew, founded in 1847. The Lobnitz yard adjoins William Simons and Co., Limited, and also controlled by G. and J. Weir. Both yards specialise in dredger building and have modernised extensively. They produce factory ships, tugs, floating cranes and similar working crafts. Unified control, it is stated, will give Weir and the two yards a much improved position in the dredger field against foreign competition. Lobnitz will also provide valuable welding and heavy machining capacity for the Weir group as a whole.

MAYBACH POWER
COMES TO BRITAIN





Bristol Siddeley are now manufacturing under licence a range of diesel engines from 220 to 2,000 bhp rail traction rating developed by the world-famous German firm of Maybach, who have had 35 years' experience in the manufacture of diesel traction units.
Bristol Siddeley Maybach diesel engines are currently being introduced into British Railways Western Region as part of their modernisation programme.

BRISTOL SIDDELEY Maybach DIESEL ENGINES

BRISTOL SIDDELEY ENGINES LIMITED · COVENTRY · ENGLAND

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